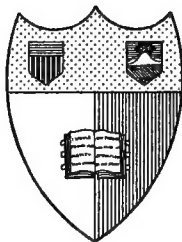


SCHOOL SURVEY

GRAND RAPIDS, MICHIGAN



New York
State College of Agriculture
At Cornell University
Ithaca, N. Y.

Library

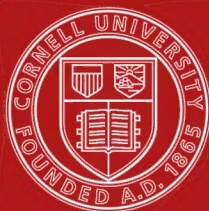
Cornell University Library
LA 309.G7A2

School survey, Grand Rapids, Michigan, 1



3 1924 013 062 348

mann



Cornell University Library

The original of this book is in
the Cornell University Library.

There are no known copyright restrictions in
the United States on the use of the text.

School Survey
Grand Rapids, Michigan
1916

TABLE OF CONTENTS

@16687

	Page
Preface	11
Introduction	15
Chapter I The Teachers	20
Chapter II Non-Promotions and Failures in the Elementary Schools	36
Chapter III Introduction to Tests	61
Chapter IV Reading, William S. Gray	62
Chapter V Composition, Matthew H. Willing.....	85
Chapter VI Tests in Arithmetic, George S. Counts.....	106
Chapter VII Penmanship, Frank N. Freeman.....	129
Chapter VIII Music, John B. Cragun	147
Chapter IX Instruction in the Elementary Schools, John F. Bobbitt	155
Chapter X Introduction to High-School Report.....	208
Chapter XI Secondary Schools, Calvin O. Davis.....	212
Chapter XII Special Classes of the Public Schools of Grand Rapids, Charles S. Berry.....	306
Chapter XIII Buildings and Equipment, John F. Bobbitt.....	340
Chapter XIV The Cost of Public Education in Grand Rapids, Harold O. Rugg	361
Chapter XV The Business Management of the Public Schools, Harold O. Rugg	441
Chapter XVI Administrative Organization	476
Chapter XVII Summary of the Report of the Survey of the Public Schools of Grand Rapids.....	484

LIST OF DIAGRAMS

Diagram	Page
I Non-promotions in each grade for the years 1913-14 and 1914-15	38
II Failures in reading for 1913-14 and 1914-15.....	40
III Failures in arithmetic for 1913-14 and 1914-15.....	41
IV Failures in geography for 1913-14 and 1914-15.....	42
V Failures in history for 1913-14 and 1914-15.....	43
VI Failures in language for 1913-14 and 1914-15.....	44
VII Failures in handwork for 1913-14 and 1914-15.....	45
VIII Failures in physiology for 1913-14 and 1914-15.....	45
IX Failures in spelling for 1913-14 and 1914-15.....	46
X Conditional promotions in each grade for 1913-14 and 1914-15	47
XI Non-promotions in the Sigsbee School.....	56
XII Non-promotions in the Diamond School.....	57
XIII Non-promotions in the Union School.....	58
XIV Non-promotions in the Lafayette School.....	59
XV Non-promotions in the Madison School.....	60
XVI Progress of 4066 pupils in oral reading.....	65
XVII Oral reading scores in Grand Rapids, Cleveland and Illinois	67
XVIII Oral reading scores in all schools and in Sigsbee and Oakdale schools	67
XIX Oral reading scores in all schools and in East Leonard and Widdicomb schools	67
XX Oral reading scores in all schools and in S. Division and Hall schools	67
XXI Silent reading rate in Grand Rapids, Cleveland and 13 other cities	76
XXII Silent reading rate in all schools and in 3 selected schools	76
XXIII Quality of reading in Grand Rapids, Cleveland and 13 other cities	79
XXIV Quality in silent reading in all schools and in 3 selected schools	79
XXV Quality in silent reading in each grade of 4 selected schools	81
XXVI Quality in silent reading in each grade of 3 selected schools	81
XXVII Scores in composition in grades 4 and 5 of 17 schools	90
XXVIII Scores in composition in grades 6 and 7 of 17 schools	91
XXIX Scores in composition in grade 8 and all grades of 17 schools	92
XXX Comparison of composition in 17 schools with composition in 8 individual schools	95, 96
XXXI Comparison of composition in 17 schools with composition in 9 individual schools.....	97, 98, 99
XXXII Merit curves in composition—Denver and Grand Rapids	100
XXXIII Quantity curves in composition—Denver and Grand Rapids	101
XXXIV Medians for all schools in 15 arithmetic tests.....	109

Diagram	Page
XXXV Comparison of scores in arithmetic tests—Cleveland and Grand Rapids	110
XXXVI Comparison of Cleveland and Grand Rapids in arithmetic test, Set A	111
XXXVII Comparison of Cleveland and Grand Rapids in arithmetic test, Set M	112
XXXVIII Comparison of Cleveland and Grand Rapids in arithmetic test, Set F	113
XXXIX Comparison of Cleveland and Grand Rapids in arithmetic test, Set L	114
XL Comparison of Cleveland and Grand Rapids in arithmetic test, Set N	115
XLI Comparison of Cleveland and Grand Rapids in arithmetic test, Set O	116
XLII Comparison of average scores made by 35 schools in arithmetic	118
XLIII Comparison of records in arithmetic at Sigsbee, Lafayette, and Turner schools	119
XLIV Scores in simple addition in 4th grade of 31 schools and 6th grade of 25 schools.....	120
XLV Scores in arithmetic—Set A—by the “middle 50%” of schools in Cleveland and Grand Rapids.....	121
XLVI Comparison of number of examples “attempted” and “solved” in arithmetic—Set M	122
XLVII Comparison of number of examples “attempted” and “solved” in arithmetic—Set O	123
XLVIII Comparison of scores in arithmetic of “fast”, “slow” and “regular” pupils	124
XLIX Comparison of scores in arithmetic of pupils grouped according to age	125
L Comparison of arithmetic scores of pupils failing or repeating below the 6th grade and of pupils repeating above the 5th	126
LI Comparison in 7th grade of arithmetic scores of “regulars”, “irregulars” and “failures”	127
LII Speed of writing in Grand Rapids and 56 cities.....	130
LIII Form in handwriting in Grand Rapids and 55 cities.....	132
LIV Speed in handwriting in St. Louis and 56 cities.....	133
LV Form in handwriting in St. Louis and 55 cities.....	134
LVI Rank in the formal writing test and the composition test	136
LVII Speed and form in handwriting for each grade in Grand Rapids	138
LVIII Speed and form in handwriting for 6 selected schools	139, 140, 141
LIX Speed and form in handwriting at Widdicomb School and in 56 cities	143
LX Speed and form in handwriting at Pine School and in 56 cities	144
LXI Speed and form in handwriting at Hall School and in 56 cities	145
LXII Median scores in music for Grand Rapids and for a composite group	152

Diagram	Page
LXIII	Distribution of grades in junior and senior college..... 270
LXIV	Training of high-school teachers..... 279
LXV	Teaching experience of high-school teachers..... 280
LXVI	Range of salaries of high-school teachers..... 281
LXVII	Range of salaries of elementary and high-school teachers for 12 typical cities..... 283
LXVIII	How high-school teachers have spent summer vacations 285
LXIX	Departmentalization of high-school work..... 286
LXX	Range of subjects taught daily by high-school teachers 287
LXXI	Time spent by high-school teachers preparing work.... 288
LXXII	Range in time spent by teachers preparing work..... 289
LXXIII	Range in time high-school teachers spend daily on duties other than class recitations..... 290
LXXIV	Range of promotions by high-school teachers..... 292
LXXV	High-school teachers failing certain percentages of pupils 293
LXXVI	Pupils "passed", "not passed" and "conditioned". Summary for 4 years—Central High School..... 294
LXXVII	Pupils "passed", "not passed" and "conditioned", by departments—Central High School..... 296, 297, 298, 299, 300, 301
LXXVIII	Comparison of possible taxation with actual tax levy for general purposes 367
LXXIX	Comparison of possible taxation with actual tax levy for permanent improvements 368
LXXX	Expenditures per inhabitant for 19 cities..... 376
LXXXI	Expenditures for all school purposes per \$1,000 of real wealth—19 cities 378
LXXXII	Expenditures per inhabitant for all city departments and for schools 380
LXXXIII	Per cent of total cost payments to schools—19 cities 381
LXXXIV	Amount spent for current expenses and permanent improvements, 1902-1915 384
LXXXV	Increase in number of teachers and in average salary paid them, 1905-1915 386
LXXXVI	Per cent of current expenditures for educational and business purposes 391
LXXXVII	Expenditures per pupil in average daily attendance, for capital outlay 396
LXXXVIII	Expenditures per pupil in average daily attendance for elementary and secondary education..... 404
*LXXXIX	Number of pupils per teacher in different school grades 407
XC	Number of pupils per teacher in elementary and secondary schools 411
XCI	Comparison of Board of Education and Common Council budgets for permanent improvements.... 421
XCII	Total amounts of bonds issued each year, 1887-1913... 424
XCIII	Total city and school bonded indebtedness, 1890-1915 425
XCIV	Distribution of general functions in the Grand Rapids school system 442

LIST OF TABLES

Table		Page
I	Distribution of that part of the population of Grand Rapids having close foreign relations.....	15
II	Some leading industries of Grand Rapids.....	17
III	Educational Institutions at work in Grand Rapids.....	18
IV	Training of high-school teachers of academic subjects.....	22
V	Training of elementary and high-school teachers of special subjects	23
VI	Training of teachers of the grades.....	26
VII	Training of kindergarten teachers	26
VIII	Experience of kindergarten teachers.....	27
IX	Experience of H. S. teachers of ac'd subjects.....	29
X	Experience of elementary and high-school teachers of special subjects	30
XI	Experience of teachers of the grades.....	32
XII	Experience of principals	34
XIII	Training of principals	34
XIV	Non-promotions for the years 1913-14 and 1914-15.....	52, 53
XV	Trial promotions for the years 1913-14 and 1914-15.....	54, 55
XVI	Scores in oral reading for 37 schools.....	66
XVII	Rates in silent reading for 37 schools.....	75
XVIII	Quality score in silent reading for 37 schools.....	78
XIX	Dist. of merit scores in comp'sn in 17 schools.....	89
XX	Quantity and merit medians and quartile deviations in merit in composition for 17 schools.....	94
XXI	Merit rankings in composition of 17 schools.....	103
XXII	Comparison of quantity and merit medians in composition in the Denver and Grand Rapids schools.....	104
XXIII	Quantity and merit medians in composition for schools tested by principals.....	105
XXIV	Medians for each arithmetic test for all grades.....	108
XXV	Speed and form in writing in each grade of Grand Rapids schools	131
XXVI	Results of speed, form-writing, and form-composition tests in each grade of Grand Rapids schools.....	137
XXVII	Composite median scores for sight reading in music—St. Louis, Grand Rapids, Chicago.....	151
XXVIII	Median scores for sight reading in music, G. R.....	151
XXIX	Comparison of music scores—Turner School, composite group, best Grand Rapids score.....	153
XXX	Hours per year to history—Grand Rapids—50 cities....	168
XXXI	Time given to man'l training and household occupa'ns.....	201
XXXII	Enrollment in Grand Rapids schools—1910-1915.....	220
XXXIII	Enrollment in certain high-school classes.....	258
XXXIV	Facts concerning enrollment of high-school students according to subject	260
XXXV	Records of 17 classes at Union H. S.....	261
XXXVI	Wages earned during summer by 9 members of manual training class at Union School.....	262
XXXVII	Percentage of pupil-elimination by teachers.....	262
XXXVIII	Percentage of total high-school enrollment in graduating class—Grand Rapids and 14 cities.....	263

LIST OF TABLES

9

Table	Page
XXXIX	Graduates entering college during four years—Grand Rapids and 9 cities 263
XL	Record of H. S. graduates at U. of M. 264
XLI	Comparison of grades given 16 students at Junior College and various senior-college institutions..... 269
XLII	Relative standing of students in Junior College and other colleges 269
XLIII	Grades obtained in senior college in subjects not begun in Junior College 270
XLIV	Distribution of grades among junior-college students entering senior colleges in 1915..... 271
XLV	Record of academic training, experience and salaries of high-school teachers 278
XLVI	Comparison of range of salaries—G. R. and 11 cities 282
XLVII	How high-school teachers have spent summer vacations for past six years 284
XLVIII	Departmentalization of work in the high schools..... 284
XLIX	Time teachers spend daily in prepar'n of school work 287
L	Range of time spent daily by high-school teachers on duties other than class recitations..... 289
LI	High-school teach's promoting stated perc'es of pupils 291
LII	H. S. teachers failing stated percentages of pupils..... 291
LIII	Percentages of marks by Depts. Central H. S. 1911-15 295
LIV	Percentage of pupils passed and not passed by individual teachers—Central High School..... 295
LV	Growth in enrollment in special classes during 8 years 307
LVI	Increase in percentage of pupils two years or more over age in special classes..... 308
LVII	Retardation in the elementary schools..... 308
LVIII	Number of pupils retarded one year..... 309
LIX	Increase in size of auxiliary classes during 5 years..... 312
LX	Range in chronological and mental ages of pupils in auxiliary classes 312
LXI	Results of 3 tests in auxiliary classes..... 318
LXII	Comparison of attendance truant and all other schools 337
LXIII	Annual tax levies for school and city purposes..... 366
LXIV	Sources and amts. of rev. of Board of Education..... 372
LXV	Relation of expenditures to revenue receipts..... 373
LXVI	Expenditures for all school purposes per inhabitant... 375
LXVII	Expend. for school purposes per \$1,000 of real wealth 377
LXVIII	Expenditures per inhabitant for various city depts..... 379
LXIX	Per cent of governmental cost payments—various city departments 379
LXX	Rank in per cent governmental cost payments—various city departments 382
LXXI	Amount spent for current expenditures and permanent improvements, 1902-1915..... 383
LXXII	Salary expenditures—teachers, janitors, administration 385
LXXIII	Distribution of educational and business expenditures of the Board of Education, 1911-1915..... 388
LXXIV	Total and per capita expenditures for educational and business purposes 389
LXXV	Per cent of total expenditures for educational and business purposes 390
LXXVI	Distrib. of current expenditures for educational service 393
LXXVII	Per cent of current expend. for educational service 394

Table	Page
LXXVIII	Current expenditures per pupil in average daily attendance, 19 cities..... 395
LXXIX	Rank of 19 cities in current expenditures per pupil in average daily attendance..... 395
LXXX	Expenditures for capital outlay, 1910-11 to 1914-15..... 397
LXXXI	Expenditures per pupil for various specific kinds of service, 19 cities..... 399
LXXXII	Rank in expenditures per pupil for various specific kinds of service, 19 cities..... 400
LXXXIII	Rank of 19 cities in number of supervisors per 1000 pupils..... 401
LXXXIV	Minimum, maximum and average salary paid to supervisors in cities of 50,000-100,000..... 401
LXXXV	Current expenditures for elementary and secondary schools, 17 cities..... 403
LXXXVI	Per cent of current expenditures for elementary and secondary schools, 17 cities..... 405
LXXXVII	Distribution of officers and teachers in different grades of schools..... 406
LXXXVIII	Distribution of enrollment and pupils per teacher in various grades of schools..... 406
LXXXIX	Pupils in average daily attendance per teacher—elementary and secondary schools..... 410
XC	Average salaries of teachers, 1915-16..... 412
XCI	Median salary paid to elementary and high-school teachers and elementary-school principals..... 414
XCII	Salary schedules for high-school and elementary-school teachers..... 415
XCIII	Increase in salary schedules in G. R. 1907-15..... 416
XCIV	Summary of ranks of Grand Rapids among cities of its class in expenditures for school activities..... 417
XCV	Comparison of Board of Education and Common Council budgets..... 420
XCVI	Permanent imp's paid for out of budget, 1906-15..... 422
XCVII	Bonds issued, rate of int. and term for which issued..... 423
XCVIII	School and city bonded indebtedness 1890 to 1915..... 423
XCIX	Bonds issued for different grades of schools, 1887-1913..... 427
C	Outstanding bonds maturing each year, 1916-1930..... 428
CI	Cost of teaching high-school subjects—Central High School..... 430
CII	Average size classes in Central High School, 1915-16..... 431
CIH	Cost of teaching per pupil in 7th and 8th grades of 5 elementary schools, 1911-1916..... 434
CIV	Cost of instruction per pupil in the 9th grade of 4 high schools, 1912-1916..... 436
CV	Semester costs of inst. per pupil, special classes..... 438, 439
CVI	Costs of instruction per pupil—special schools and classes..... 438
CVII	Cost of instruction per pupil in 7th and 8th grades in 2 intermediate schools..... 438
CVIII	Data on janitors sals. for elementary sch'ls, 9 cities..... 452, 453
CIX	Approximate monthly salary paid to janitors..... 451
CX	Payroll of repair force..... 457
CXI	Payment to outside architects and engineers, 1906-16..... 462
CXII	Cost data for fireproof elementary-school buildings..... 465

PREFACE

The survey of the schools of Grand Rapids was initiated by the School Board of the city for the purpose of studying the efficiency of instruction. The original purpose of the survey was to take up only the strictly instructional problems. A survey staff was organized for the purpose of visiting the various classrooms and conducting such tests as seemed desirable in order to evaluate the work carried on in these classes.

As the testing and observation went forward it became obvious that the results obtained in the schools were in the main of a satisfactory type. The survey staff raised at this point the question of the costs of conducting the schools of the city. It was pointed out to the Board of Education that results of the type that were appearing in the tests and observations could hardly be expected without a cost to the city which was high as compared with costs in other cities. At the suggestion of the survey staff the Board of Education extended the scope of the survey so as to include a comparative study of the costs of the system.

In the consideration of school costs and of the business organization of the central office several problems of a general administrative type appeared and in a final conference with the survey staff the Board of Education decided that it was desirable that the survey report should be extended to include the discussion of the general organization of the school system.

This description of the progressive enlargements of the scope of the survey furnishes a favorable opportunity for comment on the general purpose and function of a school survey. It is not the business of such an inquiry to determine the individual efficiency of particular teachers. It is rather the duty of the survey to bring together the evidences that show in general the character of the work done by the system as a whole. It is the duty of the survey to show the points at which the system is most highly efficient and the points at which suggestions of improvement can be made.

A first survey of a school system is limited in that it can not show how far the system has progressed from year to year.

There is little material at hand to furnish a background of comparison with earlier conditions in the system. Thus, as will be shown in the later pages of this report, the various schools of this city show different degrees of efficiency in different aspects of their work. Some are better than others in penmanship or arithmetic. Comparisons between different schools can thus be made and the results can be studied. But the question whether in any particular a given school is more efficient at the present time than it was three years ago is not easy to answer because there is no comparable record of the achievements of the pupils three years ago. A periodic inventory of the school system would be very advantageous, because it would serve to show the direction in which the school system has been moving.

Heretofore city school systems have devoted the major part of their energy to the routine duties of conducting classes for the pupils. The time has arrived when it is necessary in the interests of efficiency that a certain portion of the system's energy be set aside for the critical scrutiny of results. It is the duty of the schools, as it is the recognized obligation of every business corporation, to check up its results as fully and as frequently as possible for the purpose of avoiding wastage and for the purpose of securing any suggestions which can be profitably incorporated into new forms of organization.

Whether this work of constantly checking up the efficiency of a system shall be carried on through an increase in the supervisory staff of the system itself or through the importation from time to time of workers outside of the city system is a problem which it is not easy to solve. In the present case the Board of Education felt that it was desirable for the purpose of the survey to import temporarily into the school system a number of students of education who were not attached in any permanent way to the city system. It is possible, on the other hand, to add to the supervisory staff an officer whose business it shall be to make an annual study of educational problems. This device is exemplified in a number of cities in the United States. They employ efficiency experts connected with the office of the superintendent.

The advantages that come from securing a group of outside educators can readily be seen in that different points of view will always be contributed through the efforts of these outsiders. On the other hand, it is to be frankly admitted that outsiders overlook many of the details of the school organization which might very profitably be made subjects of intensive study.

The addition to the supervisory staff of an officer whose business it is to scrutinize the schools constantly also has certain

obvious advantages. It is possible to take up in succession problems that require time and long comparative studies for their solution.

Perhaps a combination of the two types of surveys will ultimately be worked out. It will be possible in many instances for the Board to secure the co-operative judgments of different persons in the solution of special problems. There should, however, be a larger provision for studies to be carried on each year. It is recommended that in the future Grand Rapids select for study each year one or two problems. The teaching staff would be stimulated by continuous studies of educational problems and the schools would profit by a continuous investigation of new problems. From time to time elaborate inventory may be taken of the school activities. Such a program as this suggests the possibility of combining the advantages of both types of investigation above discussed.

The personnel of the staff which made the present survey is as follows:

Professor Charles S. Berry, University of Michigan, prepared the report on special classes.

Professor John F. Bobbitt, University of Chicago, prepared the report on the elementary school curriculum and on the school buildings.

Dr. George S. Counts, Delaware University, prepared the report on arithmetic.

Mr. John B. Cragun, University of Chicago, prepared the report on music.

Professor Calvin O. Davis, University of Michigan, prepared the report on high schools.

Superintendent John H. Francis, Los Angeles Public Schools, reported briefly as indicated in the discussion of junior high schools on the work of that part of the system.

Professor Frank N. Freeman, University of Chicago, prepared the report on writing.

Dr. William S. Gray, University of Chicago, prepared the report on reading.

Dr. Benjamin F. Pittenger, University of Texas, prepared a large part of the statistical material used in the chapters on teachers and promotions.

Dr. Harold O. Rugg, University of Chicago, prepared the report on school finance.

Mr. Matthew H. Willing, University of Chicago, prepared the report on composition.

Professor Charles H. Judd, University of Chicago, organized

the survey staff and edited the results, contributing the portions of the report not otherwise indicated.

General acknowledgment is to be made of the courtesy and co-operation of all of the officers of the Grand Rapids schools. The teachers, principals, and officers at the central offices have in every case given assistance whenever asked and have answered all questions.

The survey staff cannot refrain from comment on the fortunate conditions under which this survey was inaugurated and carried out. No motive of serious tension within the system and no impending reorganization forced from without by discontented or doubtful patrons prompted the survey. It is the good fortune of the staff to have shared in a critical study of a school system, self-imposed and welcomed at every stage.

INTRODUCTION

There is no need of discussing at length the general characteristics of the city of Grand Rapids. For most of the purposes of this survey the figures for population will be taken from special reports by the Bureau of Census. The number of foreign-born inhabitants of the city can be secured in full only by referring back to the census of 1910. At that time there were 111,879 white persons and 665 negroes in Grand Rapids. Of the total white population 36.2 per cent or 40,777 persons were native-born and born of native parentage; 25.2 per cent or 28,335 persons were foreign-born; 38.0 per cent or 42,767 were born in this country of foreign or mixed parents. The following table gives the statistics of the more numerous nationalities represented among those of immediate foreign antecedents.

TABLE I

Table from the Census of 1910 Showing Distribution of that Part of the Population of Grand Rapids which has Close Foreign Relations.

Foreign Born, Born in		Native Born, Both Parents Born in		Total Number of Foreign Descent
Holland	11,891	Holland	12,742	24,633
Germany	4,546	Germany	6,749	11,295
Russia	3,557	Russia	1,570	5,127
Canada (Not French).....	2,997	Canada (Not French).....	1,222	4,219
Ireland	871	Ireland	1,828	2,699
Austria	549	Austria	389	938
Italy	319	Italy	178	497
Canada (French)	197	Canada (French)	150	347

The Dutch population, which is seen to be the predominant foreign element in the population of Grand Rapids, supports a number of parochial schools. There are also parochial schools conducted under the control of the Catholic church. These draw a considerable population, not only from the foreign-born but also from the native-born inhabitants of the city. Detailed figures are not at hand for the attendance in these schools. It is one of the important functions of the Census Bureau which has been organized by the Board of Education to make a complete showing of the children who are attending these special schools

as well as of the children who are in attendance at the public schools.

The Bureau of Census of the Board of Education is organized at the present time as part of the business office of the secretary of the Board of Education. A card has here been made up for each child in the city which includes much valuable information and would be of very great service to the attendance department which is in the office of the superintendent of schools. Comment will be made in a later section of this report on the desirability of bringing into closer relation the business and instructional divisions of the central office. The census is a crucial element of the whole situation. If cards could be carefully prepared for a year or two, showing all of the children in the city and their distribution in different schools, and if these cards could be brought into close comparison with the cumulative records which the school system has worked out as a part of its educational machinery, the further taking of the school census would be greatly facilitated and the information which the city has about its children would be complete. Such a complete body of information would serve a great many public purposes other than that which is now served by the census. At the present time the census serves merely as a basis for the drawing of state funds for public schools. It is not useful at the present time as a basis for the activities of the attendance officers, and it is not as fully as it should be, an instrument for the educational improvement of the city.

Wherever parochial schools exist the school problem is complicated. The complications which naturally arise under these conditions would be in some measure alleviated if the children could be located and their station in the various schools determined. It is also desirable that parochial schools be brought into closer contact with each other and with the public schools so far as standards of training are concerned. The whole community is interested, whatever may be the desires of individual parents for special types of training for their children, in a standardized scheme of education which shall offer to every child opportunities of the most complete type. A census bureau including all of the children would be a first step in the general equalization of educational opportunities. Later steps could be confidently expected if the children, being well located, were systematically studied by public officers in all of their educational activities.

The schools of Grand Rapids will reflect in some measure the economic character of the city. It hardly needs to be pointed out in a report of this kind that the city is famous the world

over for its manufacture of furniture and furniture accessories. It has other industries which are represented in the following table which is taken from the statistics compiled by the Business School Club of the Harvard Graduate School of Business Administration in January, 1915. This table of the business activities of the city suggests very emphatically the importance of a larger recognition of the problem of industrial education. The problem of training workers in the trades has come to be more and more clearly recognized everywhere in this country. Grand Rapids is doing much in its night school, also in its development of vocational guidance and in its general educational activities for the people who are at work in the factories of the city. There is still, however, an unaccepted opportunity for an extension of trade training under public auspices. The training of mechanics can no longer be provided for in this country under the apprenticeship system. The National Society for the Promotion of Industrial Education has recently made two extended surveys of the industries of cities. One of these

TABLE II
Some Leading Industries of Grand Rapids.

	Number of Plants	Number of Employees	Capitalization	Annual Wage Expenditure
Furniture	54	7,250	\$13,321,905	\$3,902,780
Printing, Binding, etc.....	68	832	1,629,397	488,656
Foundries and Machine Shops.....	49	1,532	2,814,500	825,131
Planing Mills	20	594	1,434,000	342,581
Tobacco	36	458	236,350	187,801
Flour	8	118	1,152,690	71,691

surveys was made in Richmond, Virginia, and the other in Minneapolis, Minnesota. In both of these cases attention was called to the urgent need for adjustments within the educational system to the peculiar industrial needs of the city itself.

It has not been the function of the present survey to canvass the industrial activities of the city of Grand Rapids. It would be a very useful work for the city to undertake and one in which the business men would undoubtedly be interested if the school officers would canvass in full the educational requirements which parallel the industries of the city. The high schools with their shops and the elementary schools, especially the junior high school, with their opportunities for manual training and art work, are meeting in some measure the needs of industrial training or general training of a vocational type. This work would be very much more definitely aimed at the needs of the city if a general canvass were made of all of the industrial demands and educational possibilities furnished by the unique industrial development of the city of Grand Rapids.

The attention of the citizens should be especially drawn to the possibilities of a part-time scheme of education which could be elaborated in a way to utilize the various factories of the city for educational ends, and at the same time apply the public-school equipment in an improvement of industries.

A table prepared by Professor C. O. Davis in connection with his study of the secondary schools of the city illustrates another phase of public education which should not be omitted from any general consideration of the educational opportunities of the city of Grand Rapids. This table gives the leading public institutions that can be regarded as co-operating with the schools in the education of the people.

TABLE III

Institutions which Carry on Educational Work in Grand Rapids.

Libraries: 5, with branches in 11 schools and also in 1 separate building.
Hospitals, asylums, benevolent organizations: 32.

Public parks: 40.

Secret and benevolent societies: 41 orders with 127 societies.

Clubs (literary, business, social, etc.): 127.

Musical societies (many of them of distinctive influence): 8.

Bands and orchestras: 17.

Theaters and places of public amusement: 32.

Newspapers and periodicals: 37, several being trade journals and several being the publications of various national groups of citizens.

Churches: 22 distinct denominations with 112 edifices.

Building and loan associations: 5.

Colleges and schools (including musical, business, designing, correspondence, kindergarten, collegiate, and theological divisions): 14.

Convents and private schools: 45.

Commercial organizations: 10.

It will be noted especially that in this table reference is made to those agencies which provide for the use of the leisure time of the citizens of Grand Rapids. One of the educational problems of which this generation is becoming keenly aware is the problem of providing suitable amusement for the people.

The leisure time of all classes of people has been increasing with the improvement in economic conditions. To provide for their leisure time is a large civic problem. The schools of Grand Rapids are doing much to help solve this problem especially for the young people. It is beyond the scope of this survey to take up the study of all the civic agencies which are engaged in the task. It may not be out of place, however, to suggest that an investigation might be carried out which would be of great

value first in bringing to the attention of the citizens of Grand Rapids the importance of this phase of their life and work, and second in improving conditions in the city.

These general statements will serve to introduce the survey of the public schools. The schools in their present organization, the relation of the business management to the instructional management, the character of the teaching staff, the relation between the various divisions of the school system, and the achievements of the classes in typical aspects of their work, constitute the problems which will be treated in this report.

CHAPTER I

THE TEACHERS

The Organization of a Corps of Teachers

A school system depends very largely for its efficiency upon the character and training of its teaching staff. The facts on which to base comparisons of the body of teachers employed in the schools of Grand Rapids with teachers in other cities of like size are difficult to secure. It may be said in general that American teachers are characterized by a relatively short tenure of office, and by a limited technical preparation for their work. These defects in the general equipment of American teachers grow in part out of the rapidly changing social conditions of this country. The attractive opportunities offered by industry and business to the young people of the country have taken away from the schools the grade of young men and young women who, two generations ago, taught school. The schools are at the present time in sharp competition with the business world. For example, it is usually more profitable for a young woman with a high-school training to take a short business course and enter an office as a stenographer where she will be employed for the whole year than to go through a normal school and enter a school system where the long vacation deprives her of an opportunity of continuous employment. Furthermore, the grade of salaries, as has often been pointed out in discussions of school matters, is such that the business and professional opportunities outside of the school are more and more encroaching upon the teaching staff.

The difficulty of organizing a strong and permanent teaching staff is rendered serious also by the fact that many who enter the teaching profession continue in the schools only for a short time. The vast majority of the teaching force is made up of women who ultimately leave the schools to be married.

Furthermore, those who enter the profession migrate freely from school system to school system. This migration has the advantage of transferring new ideas from one center to another, but it has, on the other hand, the serious disadvantage of break-

ing up the organization of the schools and interrupting the development of consecutive policies. Every business finds it costly to break in new workers.

Grand Rapids has Teachers of Long Tenure and Technical Training

In spite of these difficulties the teaching corps of Grand Rapids shows relatively long tenure and a relatively high grade of equipment. The great majority of the teachers of the Grand Rapids schools are experienced, thoroughly acquainted with the conditions of their work, and equipped by special technical training.

Preparation of High-School Teachers of Academic Subjects

The facts with regard to the teaching staff of Grand Rapids can be enumerated in several tables. The first of these tables deals with the training of high-school teachers in academic subjects. The facts are reported in full in Table IV. It will be noted that 70 of the 91 high-school teachers in the city have college degrees. Sixteen more have a normal-school education. For some years the schools of Grand Rapids have been included in the lists of the North Central Association. This Association requires that all of the teachers of academic subjects shall be college graduates. The University of Michigan is also insistent that the qualifications of teachers reach at least the level of a college degree. These requirements are not made retroactive. Teachers of experience who do not have degrees are therefore retained if they are successful, but the new appointees must have degrees. The number should therefore continually increase of those holding degrees. One feature of this table which deserves special comment is the number reported as having taken graduate work. Further comment on high-school teachers will be found in the report of Professor C. O. Davis on secondary schools.

Preparation of Teachers of Special Subjects.

Table V shows the training of the teachers of special subjects. This table does not distinguish between teachers in the high schools and the elementary schools. This table shows a fact which is very general throughout the United States, namely, the fact that teachers of special subjects are not trained by as long a period of study as are teachers of academic subjects. At the present time it is impossible for even the best school sys-

TABLE IV

Types of Training of High-School Teachers of Academic Subjects, together with Statement of Numbers of such Teachers having each Type of Training.

SUBJECT	No.	A		B*		C* College with Degree	D*	E*	F	G
		High School Only Part	Whole	Normal School 1 year	2 years					
English	28	0	1	0	6	21	2	1	0	0
History	15	0	1	0	3	11	2	0	0	1
Ancient Languages	7	0	0	0	1	6	2	0	0	4
Modern Languages	11	0	2	2	1	6	1	0	0	2
Mathematics	23	0	0	0	2	21	1	0	0	3
Biology	10	0	0	0	2	8	1	0	0	2
Physical Science	4	0	0	0	1	3	2	0	0	2
Total**	91	0	3	2	16	70	10	1	0	0

* Column D overlaps column C; C may overlap B, and E may overlap any column.

** Excluding duplicates appearing above. It should be noted that the numbers in this line are not the sums of the vertical columns above them.

TABLE V

Types of Training of All Teachers of Special Subjects in both Elementary Schools and High Schools, together with Statement of Numbers of such Teachers having each type of Training.

SUBJECT	No.	A		B*		C* College with Degree	D*	E*	F	G
		High School Only Part	Whole	Normal School 1 year	2 years		Graduate	Special or Technical	Not Re- porting	Duplicates
Manual Training	33	5	3	4	10	2	1	11	0	0
Domestic Art	30	2	0	2	4	4	0	22	0	0
Music	12	0	0	0	4	2	1	5	1	2
Art	18	1	0	0	4	2	0	12	0	2
Physical Training	15	0	0	1	12	1	0	3	0	3
Commerce	14	1	1	0	4	5	0	3	0	0
Ungraded and Defective.....	33	1	6	6	12	5	1	8	0	1
Total**	150	10	9	13	47	21	3	62	1	0

* Column D overlaps C; C may overlap B, and E may overlap any column.

** Excluding duplicates appearing above. It should be noted that the numbers in this line are not the sums of the vertical columns above them.

tems to demand that technical teachers have a complete academic training in addition to their technical training. Attention must, however, be called to the fact that the development of the course of study is seriously impeded by the fact that these teachers of special subjects are very frequently not qualified to enter in a large and sympathetic way into the discussions of general educational problems. The academic subjects are the older subjects in all schools. The members of the faculty who have charge of the academic subjects are better trained and because of longer experience are more influential in determining the policies of the schools which they serve. The newer subjects suffer from the limited training of their representatives. Furthermore, these subjects are often sorely in need of the kind of organization which can be worked out only by teachers of better training.

Special Difficulties in Securing Teachers for Technical Subjects

Grand Rapids has included a generous list of these special subjects in its organization. It must face two facts with regard to these subjects. First, they are expensive. One reason why teachers of inferior training must be employed in these courses is that the competition of business is very much sharper here than in the case of academic teachers. A shopman, for example, can usually earn in the trades or in the engineering profession more than the school can pay him for conducting classes. At the standard salary paid to the teacher, he continues to be a shop teacher either because he is devoted to that type of professional life or because he is inferior from the industrial point of view. In many cases the city is paying for the services of these special teachers as much as would be paid for an academic teacher of longer training.

In the second place, not only is the cost of special subjects great but the vigilance of the school system in organizing these newer subjects must be very large. Statements will be made in later parts of this report with regard to the efficiency of the work carried on in some of these lines. It is extraordinarily difficult at this stage of educational organization to determine the degree of efficiency exhibited in many of the special subjects. Their materials are not as systematically arranged as are the materials of the older courses. In some cases, the materials are not easily accessible to teachers and students, and commonly there is an absence of agreement as to the best methods of teaching in these subjects. The city must be prepared to give somewhat larger support to the supervising officers of the system if the work in these new subjects is to be kept at a high level.

Preparation of Grade Teachers

Table VI shows the preparation of the grade teachers. It will be seen at a glance that the great majority of these teachers are normal-school graduates. The majority of them have had a full normal-school course of two years. There is still a dangerous margin of teachers who have had less than a normal-school course. Only a very limited number of teachers in the grades have college degrees. The city of Grand Rapids is developing, as will be pointed out more fully later, a plan of education which includes in the seventh and eighth grades many courses that heretofore have been recognized as high-school courses. If this work in the seventh and eighth grades is to be administered satisfactorily, the teachers who conduct these courses must be in their training and equipment at least the equals of the high-school teachers. The showings of this table for the seventh and eighth grades make it clear that this ideal has not been reached in any complete sense at the present time.

The grades which call for special comment are the first grade and the sixth grade. These grades stand forth as conspicuous for the limited school training of their teachers. Eleven of the teachers in the sixth grade have only one year of normal-school training, and seven have only a high-school training. Out of a total of 45 teachers this is a very large number to have so limited a training. The first grade has a somewhat larger number of teachers without full institutional training. The deficiency in the sixth grade is perhaps more serious than that in the first grade because of the greater demand in the higher grade for academic preparation for the guidance of the older children.

Preparation of Kindergartners

Table VII shows the training of the kindergarten teachers of the city. The kindergarten teachers of Grand Rapids are supplied for the most part by a private kindergarten institution in the city. Grand Rapids has been progressive in its treatment of the kindergarten problem. In many cities of the United States the kindergarten is so widely separated from the first grade that pupils get very little advantage from their kindergarten training when they enter on the regular work of the schools. Grand Rapids has eliminated this difficulty in large measure by appointing a single supervisor to take charge of both the primary and the kindergarten instruction. It is necessary in view of this policy of closely relating kindergarten work and first-grade work for the supervisor in the public school system to give a good deal of attention to the training of the young

TABLE VI

Types of Training of Teachers of the Grades, together with the Numbers of such Teachers having each Type of Training.

GRADE	No.	A		B*		C* College with Degree	D*	E*	F	G
		High School Only Part	Whole	Normal School 1 year	2 years		Graduate	Special or Technical	Not Re- porting	Duplicates
VIII	27	1	6	3	13	2	0	0	2	9
VII	41	1	9	4	26	3	0	0	0	17
VI	45	1	7	11	21	5	0	0	0	16
V	47	2	7	8	28	2	0	0	0	12
IV	52	2	3	5	38	2	0	0	2	14
III	61	4	3	4	45	3	0	1	2	20
II	46	0	5	8	33	0	0	2	0	13
I	55	3	9	14	20	1	0	8	0	5
Total**	304*	13	42	48	180	11	0	7	3	0

* Column D overlaps column C; C may overlap B, and E may overlap any column.

** Excluding duplicates appearing above. It should be noted that the numbers in this line are not the sums of the vertical column above them.

TABLE VII

Types of Training of Kindergarten Teachers, together with Statement of the Number of such Teachers having each type of Training.

	No.	A		B*		C* College with Degree	D*	E*	F	G
		High School Only Part	Whole	Normal School 1 year	2 years		Graduate	Special or Technical	Not Re- porting	Duplicates
	63	1	0	2	6	2	0	54	0	1

* Column D overlaps column C; C may overlap B, and E may overlap any column.

women who come from the private kindergarten school in the city. It is regarded by the School Officers as desirable to employ for kindergarten work the young women who have been trained in the city. This policy makes it all the more important that supervision and training be in sympathy. Under these conditions, it would be wise for the city to take over in a much larger degree the supervision of training. The number of kindergartners who are added to the system each year is relatively small, but it is of crucial importance that they be trained in the right way to co-operate with the primary grades. There is no justification for a kindergarten which is an isolated part of the school system. Grand Rapids has avoided this mistake so far as the treatment of the pupils is concerned. It ought to take no risks in the training of its teachers. It is perfectly evident that the present kindergarten teachers, while they are all high-school graduates, are being taken into the system with less advanced training than other classes of teachers. Their training is special and technical in an institution that does not rank as a normal school. Very few of them have any higher training than that which is given by this institution.

Experience of Kindergartners

This statement with regard to the kindergarten teachers can be re-enforced by reference to Table VIII, which shows the amount of experience which these kindergarten teachers have. Especially does this table show that the local experience of the

TABLE VIII

Years of Experience in Grand Rapids (Local) and in both Grand Rapids and elsewhere of the Kindergarten Teachers, together with the Number having each Specified Period of Experience.

		Total No.	0-2 years	3-5 years	6-10 years	11-15 years	16-20 years	21-25 years	26-30 years	31-35 years	Median* No. of years
Local	Experience	63	16	12	17	7	5	5	0	1	6.2
Total	Experience	63	15	12	17	7	5	5	1	1	6.5

* Median is that quantity above and below which half the cases are to be found.

kindergartners is practically the same as their total experience. Furthermore, the great majority of them have had a relatively brief experience. Indeed, as will be seen by a comparison of this table with the tables immediately succeeding, the experience of this class of teachers is the least of any class in the city. Especially should the experience of the kindergartners as presented in this table be contrasted with the experience of the primary teachers in Table XI. It will then be seen that the primary teachers, whatever the limitations on their institutional training,

have had a great deal more experience than the kindergartners. The kindergarten teachers are evidently young women selected with deference to the demand that residents of Grand Rapids be employed for this division of the school.

Experience of High-School Teachers of Academic Subjects

The next tables deal with the experience of the various classes of teachers who have already been discussed from the point of view of their training. The impressive fact about these tables is the large amount of experience which they show on the part of many teachers. Thus Table IX, which shows the length of experience of the high-school teachers of academic subjects is very striking in its showing of long tenure of office. Only twelve teachers out of the 89 reporting in this table have had less than five years of experience in teaching. The table as a whole shows that the teaching staff of Grand Rapids is relatively permanent in its tenure, and it indicates that in this degree the advantages that come from a permanent organization are found in the school system of this city. The opposite type of criticism is suggested by the very long tenure which is exhibited in a few cases. The observations of the survey staff gave no ground for the presentation of this criticism. The probability that a pension law will be enacted in Michigan is of importance in this connection. The city of Grand Rapids can well afford to support such a measure. It will aid in maintaining the favorable type of organization which is exhibited in the table, while guarding against the dangers of over-long tenure.

One other point may be brought out in connection with this table. The local experience of these teachers as contrasted with their total experience shows that many of them have served for several years in other schools. This, when coupled with long tenure is not a disadvantage to the school system, because service in other school systems will redound to the advantage of the Grand Rapids schools by bringing to these schools many suggestions which come from the examples of other systems.

Experience of Teachers of Special Subjects

Table X shows the period of experience of teachers of special subjects. The length of experience of these teachers is in sharp contrast with the length of experience of the academic teachers. The teachers of ungraded and defective children should perhaps not be included in a table of this sort. They are virtually elementary teachers who have been transferred to a special function. In any case, however, the table shows that the length of

TABLE IX

Years of Experience in Grand Rapids (indicated below only in totals) and in Grand Rapids and elsewhere (indicated in detail and in total below), together with the number having each Specified Period of Experience. Teachers of Academic Subjects in High Schools.

SUBJECT	Total Number	No. not porting	Re- No. Re- porting	0-2 years	3-5 years	6-10 years	11-15 years	16-20 years	21-25 years	26-30 years	31-35 years	36-40 years	41-45 years	No. of Median†
English	28	4	24	2	2	5	5	4	1	3	1	1	0	13.5
History	15	0	15	0	1	4	2	3	2	2	1	0	0	16.6
Ancient Languages	7	0	7	0	1	1	2	1	1	1	0	0	0	15.0
Modern Languages	11	0	11	0	0	2	3	1	2	1	0	2	0	20.0
Mathematics	23	0	23	0	3	5	3	6	3	0	2	1	0	15.8
Biology	10	0	10	1	2	1	1	1	4	0	0	0	0	17.5
Physical Science	4	0	4	0	0	0	1	3	0	0	0	0	0	17.5
Total*	91	2	89	3	9	17	16	18	12	6	4	4	0	15.0
Total Local Experience*	91	1	90	14	13	19	16	8	10	5	2	3	0	9.8

* Excluding duplicates. It should be noted that the numbers in these lines are not the sums of the vertical columns above them.
† See Table V.

TABLE X

Years of Experience in Grand Rapids (indicated below in totals) and in Grand Rapids and elsewhere (indicated in detail and in totals below), together with the Number having Each Specified Period of Experience. Teachers of Special Subjects in both High Schools and Elementary Schools.

SUBJECT	Total Number	No. not reporting	Re- porting	0-2 years	3-5 years	6-10 years	11-15 years	16-20 years	21-25 years	26-30 years	31-35 years	36-40 years	41-45 years	Median† No. of years
Manual Training	33	0	33	3	13	6	6	4	0	1	0	0	0	5.8
Domestic Arts	30	3	27	6	3	8	3	5	2	0	0	0	0	8.1
Music	12	0	12	4	2	5	1	0	0	0	0	0	0	5.5
Art	18	0	18	3	4	6	1	0	3	0	1	0	0	7.1
Physical Training	15	0	15	8	2	4	1	0	0	0	0	0	0	2.0
Commerce	14	0	14	3	1	4	3	1	1	1	0	0	0	9.4
Ungraded and Defective	33	0	33	2	3	4	5	10	4	3	0	1	1	16.5
Total*	150	3	147	28	27	36	19	19	10	4	1	1	1	7.7
Total Local Experience*	150	3	147	50	38	31	11	9	4	4	0	0	0	3.9

* Excluding duplicates. It should be noted that the numbers in these lines are not the sums of the vertical columns above them.

† See Table V.

service of special teachers is relatively very short. A full discussion of the difficulties of organizing these special courses was given above and need not be repeated at this point. Everything that was said at that time is emphatically confirmed by this table.

Experience of Grade Teachers.

Table XI shows the length of service of the grade teachers. In discussing the table showing the training of grade teachers, comment was made on the limited training of teachers in the first and sixth grades. It will be seen from a study of this table that a number of the teachers in both of these grades are teachers of long experience. Many of them evidently are teachers who entered the school system at the time when the requirement was not as high as it has been in recent years.

One other fact which was pointed out in discussing the table of kindergarten teachers should be referred to again. Teachers in the first and second grades are among the mature teachers of the system. As pointed out before, this is in marked contrast with the relatively slight preparation and small experience of the kindergarten teachers.

Location of Less Experienced Teachers

This table shows very clearly where the younger and less experienced teachers are placed in the grades. The third and fourth grades have the younger teachers of the system. This is in keeping with the general practice of schools all over the United States. In the judgment of the present writer it is a very bad practice. Children in the fourth grade are passing through an important period in their educational careers. They have just consummated the work of the primary grades. They have learned to read and write and use the fundamental arithmetical processes. They are now ready for a new type of training, and they ought to get this training under teachers who can give them the very best of attention and the most skillful guidance. The fact is that the middle grades in the elementary schools all over the United States have been treated as grades in which drills are to be greatly emphasized. This emphasis on drill has been overdone. With the re-organization which is going on in many school system and especially in Grand Rapids, looking toward the termination of the elementary course in the strict sense of the word at the end of the sixth year, it is doubly important that the fourth and fifth grades should be made subjects of very careful study. Some of the criticisms of the teaching of reading which will appear in the later chapter on this subject

TABLE XI

Years of Experience of Teachers in the Grades. Experience in Grand Rapids (indicated below in totals) and in Grand Rapids and elsewhere (indicated in detail and in totals), together with the Number having each Specified Period of Experience.

GRADE	Total Number	No. not reporting	No. Re- porting	0-2 years	3-5 years	6-10 years	11-15 years	16-20 years	21-25 years	26-30 years	31-35 years	36-40 years	41-45 years	No. of years	Median†
VIII	27	2	25	2	1	2	2	2	2	6	0	0	0	14.0	0
VII	41	0	41	2	2	2	10	10	7	5	1	2	0	17.5	0
VI	45	0	41	3	5	4	6	12	5	5	3	2	0	17.9	0
V	47	0	47	3	5	10	10	6	5	4	1	2	1	13.0	1
IV	52	2	50	12	5	12	9	7	3	0	1	1	0	8.1	0
III	61	7	54	6	12	10	6	5	9	3	3	2	0	9.8	0
II	46	0	46	5	5	10	6	8	6	4	0	1	1	12.9	1
I	55	0	55	2	3	6	9	12	10	9	4	0	0	18.3	0
Total*	304	5	299	23	31	47	47	57	41	33	12	6	2	15.2	2
Total Local Experience*	304	5	299	40	25	61	44	46	30	12	10	2	2	9.8	2

* Excluding duplicates. It should be noted that the numbers in these lines are not the sums of the vertical columns above them.

† See Table V.

attach very definitely to this period in the school work. It is important, therefore, that the teaching staff be improved at this point. So far as length of service is an accompanying characteristic of high technical ability, there should be a change at this point. In any case, the supervisory officers of the system should give large attention to this part of the school system just because its problems are difficult and the present teaching staff is less experienced than the teaching staff at other points in the schools.

Experience and Training of Principals

Table XII shows the experience of the principals. In general the principal of an elementary school in Grand Rapids and in other cities has secured his or her position after service as a teacher in the system. The result is that in all the school systems of the United States, the principals exhibit, as they do in this table, long periods of service. This in itself is certainly not objectionable. It gives promise of mature ability to deal with school problems. Long experience, however, is a virtue only when it is accompanied by continued training. The table of the training of the elementary-school principals has been postponed to this point in order that the contrast between the principals and the teachers in the schools might be made as pointed as possible. Table XIII gives the training of the principals of all the schools. The institutional training of the elementary principals is inferior. It ought to be remarked at once that some of the principals have kept up study during their term of service, but it is legitimate that the demand for such continued training be made very emphatic. The problem of supervising a school building is a very much more complex problem than the problem of giving instruction to a group of children. Supervision calls for a knowledge of school organization which is very comprehensive. It is coming to be recognized everywhere in the school systems that supervision is not merely the final stage of teaching. It is a distinct and more elaborate art. The competent supervisor must know something about how to test the work of the children and the teachers in the grades. The supervisor must know how to keep teachers in service actively engaged in increasing their equipment for school work. All of these demands point very emphatically to the necessity of special technical training for supervision. The principals of the Grand Rapids schools are in many cases vigorous, competent supervisors. In some cases they are in need of more training than they now have.

Indeed, the point in the school system of Grand Rapids where a conscious effort to improve is most urgently needed is

TABLE XII
Years of Experience of Principals: "Local" showing Experience in Grand Rapids.

Local Experience	Total Number	0-2 years	3-5 years	6-10 years	11-15 years	16-20 years	21-25 years	26-30 years	31-35 years	36-40 years	41-45 years	Median† No. of years
High-school Principals*.....	5	0	3	1	0	0	1	0	0	0	0	5.0
Elementary-school Principals	38	2	0	2	4	5	7	8	6	1	3	24.6
Total Experience												Median†
High-school Principals*.....	5	0	0	3	0	0	2	0	0	0	0	10.0
Elementary-school Principals	38	0	0	0	1	4	8	9	9	3	4	28.6

* Includes one assistant principal.

† See Table V.

TABLE XIII
Types of Training of Principals.

	Number	A High School Only Part Whole	B* Normal School 1 year	C* College 2 years with Degree	D* Graduate	E* Special or Technical	G Not Reporting
Elementary-school Principals	38	4	9	12	1	4	0
High-school Principals	5	0	0	0	3	0	0

* Column D overlaps column C; C may overlap B, and E may overlap any column.

among the elementary principals. They need to study the methods of supervision which are based on scientific tests. Many of them have at the present time scant sympathy with scientific work in education. The city has a right to demand much of these principals which is not included in mere routine.

Continued Study on the Part of Teachers

It may be urged in general that all teachers keep up their studies. It used to be thought of as relatively unnecessary for a school system to make the requirement that teachers continue their studies. It was assumed that teachers had by nature or training such studious habits that they would, without any outside pressure, continue to read and study new subjects. It has been discovered, however, that whatever a teacher's training, the school systems must contribute by some legitimate professional stimulus the motive for strenuous self-improvement, which, in the other professions, is supplied through competition. A doctor and a lawyer cannot long hold positions of pre-eminence in a community unless they keep up their studies and thus keep themselves abreast of the advances in their professions. The teacher does not encounter competition in the same fashion as members of other professions. Some explicit encouragement on the part of the school system must therefore be put forth to encourage a continuation of systematic study on the part of all members of the teaching staff.

CHAPTER II

NON-PROMOTIONS AND FAILURES IN THE ELEMENTARY SCHOOLS

The progress of pupils through the grades has been a subject of intensive study in many of the school systems of the United States for the last few years. The general method adopted in making this study is to note the ages of the pupils in the different grades and by a comparison of these age-grade statistics to determine whether the children are getting through the schools in the normal length of time or are delayed in their progress because of failures or incidental difficulties arising from transfer or absence.

Age-Grade Tables Not Repeated

Such studies of age-grade statistics have drawn attention to the importance of devising in the school system some means of accelerating the movements of students through the grades. In view of the fact that the report of the superintendent of schools of Grand Rapids has for some years given attention to these age-grade statistics, no effort will be made in this report to recanvass the matter by that method.

The statistics published annually show that retardation, that is the holding back of children in the grades, has been progressively checked. There is still opportunity to improve the conditions for those pupils who do better than average work and ought therefore to move more rapidly than do the average. It is highly desirable that such strong students go forward as rapidly as possible. The matter is one which touches very intimately all phases of school work and this report suggests that the administration organize a committee of teachers and principals for the study of the possibilities within the Grand Rapids system of more attention to the acceleration of pupils. Most of the findings of this survey could be focused on this general problem.

Elimination of Defectives

In the meantime this report turns to a complete account of those cases where the school operations have, for some reason or other, failed of their normal goal, namely, the advancement of the pupils through the grades at the regular rate of one-half grade each semester. Whenever a pupil fails of promotion, there is clear evidence that the school and the pupil have not succeeded in accomplishing the task which was set for them. In some cases the failure of the child is inevitable because his natural capacity is so small that he cannot do the work of the grade. Grand Rapids has made provision for students who are of such limited capacity that they cannot carry on the regular work of the schools. A special report on this group of students by Professor Charles S. Berry, of the University of Michigan, is presented in a later chapter. The elimination from the regular classes of children who are of abnormally low ability is a distinct advantage to the school system. It removes from the classes the difficulties that arise through the presence of children unable to carry the course of study, and it provides for the defective children a type of training better suited to their needs.

Reasons for Non-promotion

The remaining children in the school system presumably have a natural capacity which ought to make it possible for them to go through the course of study administered in the grade without serious delay. There are, to be sure, legitimate reasons why delay must be suffered in individual cases even when the child's ability is normal. A child who is sick during half of the year, for example, ought, in some cases, to spend some time during the next following year making up the loss. Some children do not work and should be penalized.

When one has considered all of the legitimate reasons for non-promotion of children in the grades, there remains a very considerable margin of failure for which the school itself must assume responsibility. If the course of study is not appropriate to the needs of children, failure will result. This failure, while it expresses itself in the form of a lack of interest on the part of the child in the work which he is doing, is traceable in reality not to any defect in the child but to a failure on the part of the school to meet his legitimate requirements and his natural interests. Formerly the school took the attitude that every failure was chargeable to the child. It was assumed that the course of study gave infallibly the best training in every case. Students of education are coming to realize more and more that an inflex-

ible course of study is not legitimate in a public educational system which requires the attendance of all children. If the law requires a boy to go to the fourth grade, there ought to be some effort in that grade to see that he gets a type of training that will be useful to him. To be sure, there must be a certain degree of insistence that he conform to the general requirements

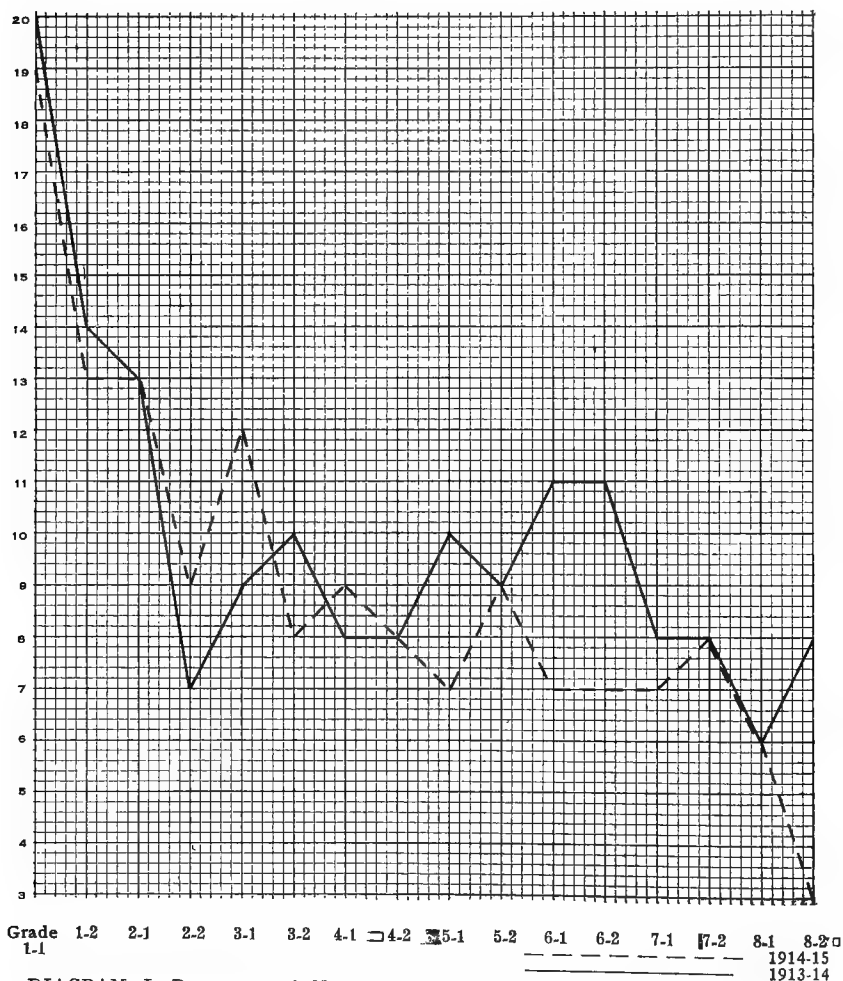


DIAGRAM I—Percentage of Non-promotions in each grade of the Grand Rapids Schools for the years 1913-14 and 1914-15.

which have been set up for children of his age, but this insistence must not be enforced without due regard to his personality and his future.

It is such considerations as these that have led superintendents and teachers in recent years to canvass again and again the course of study and to look for possible modifications which will relieve the course of undesirable material or bring in new material which will make the course more productive for the later life of the pupils. A full consideration of the course of study will appear in a later section of this report by Professor J. F. Bobbitt. The purpose of the present chapter is to prepare the way for the subsequent studies of the subjects of instruction by making it as clear as possible that the school must face as one of its grave problems every case of failure.

Percentages of Non-promotions in the Various Grades

Diagram I* shows the percentages of non-promotions in each of the grades. The diagram should be interpreted as follows: In two successive years the percentages of non-promotion in the I-1 grade were 20 and 19 respectively. This large failure in the primary grade is to be explained by the fact that many children enter school at an age when they are too immature to succeed in the work of the school. Some of them come from homes where they do not have the preliminary training which makes it possible for them to take up school work with success. Furthermore, during the earlier grades the defective children are in the process of separation from the classes.

After the first half year, the situation improves very rapidly for we find that in the I-2 grade the percentage of failures has decreased to 14 and 13. In the first half of the second grade failures are at about the same level as failures in the last half of the first grade. In the later grades there is still further improvement with some irregularities.

The irregularities show maladjustment of some kind. Especially noticeable is the difference between the two years in the treatment of the sixth grades. The striking difference between the records of the two successive years calls for close study as does also the difference between the two years in the III-1 grade and the V-I grade.

The diagram as a whole shows a relatively low rate of mortality. The evidence here and throughout the various studies of particular subjects all goes to show that the schools are comparatively successful with their pupils. There remains, however,

*Full details in these matters are given in Tables XIV and XV.

a large opportunity for special study of particular subjects, as will be shown by the later diagrams in this chapter. Furthermore, whatever the present condition, improvement is desirable.

Failures in Reading and Arithmetic

The significance of the plea for improvement comes out very clearly if the records of failures in reading and arithmetic are contrasted with each other. In order to secure the material for these two diagrams, the school records were canvassed for all of the reports of failures in the particular subjects. If a child fails in one subject in a given grade, he is not necessarily held back from promotion because of that single failure. There ap-

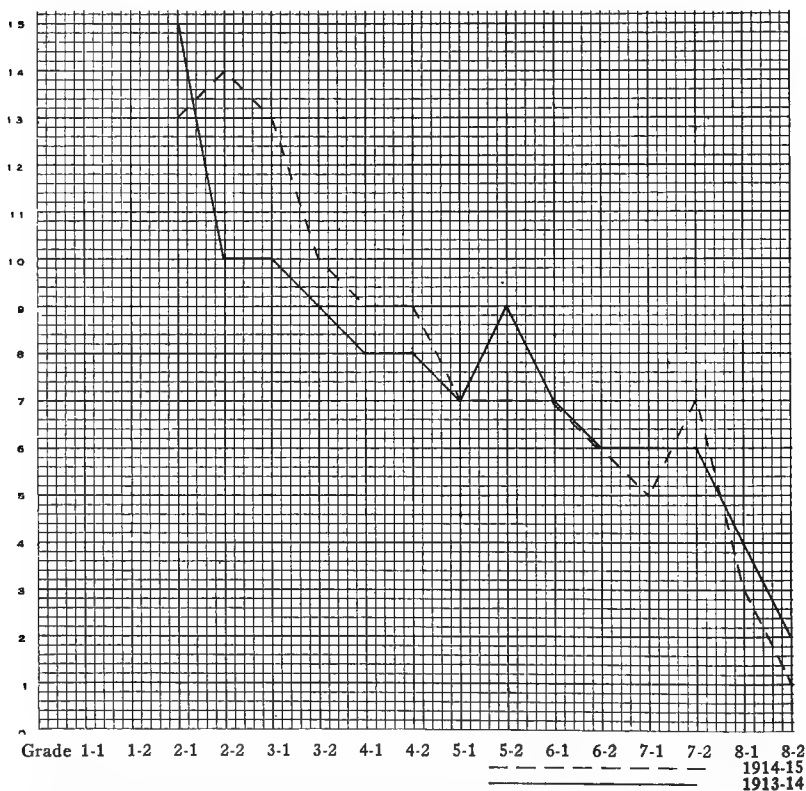


DIAGRAM II—Percentage of Failures in Reading in each grade of the Grand Rapids Schools for the years 1913-14 and 1914-15.

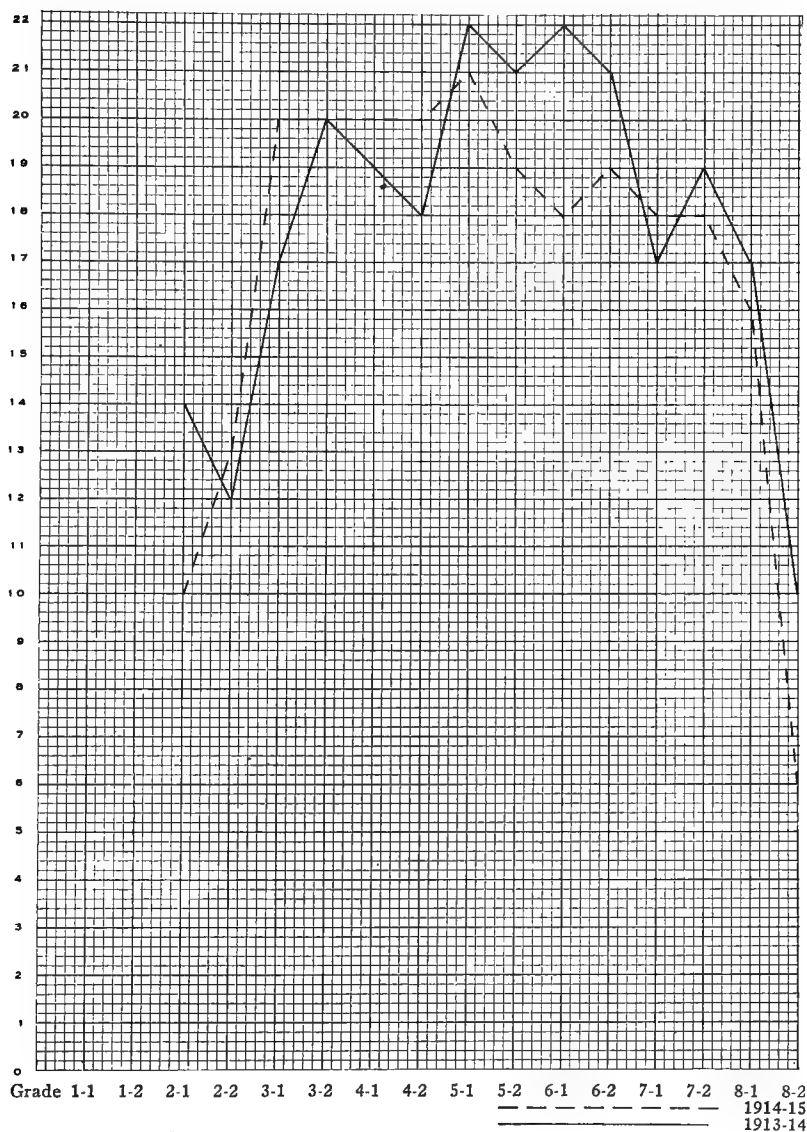


DIAGRAM III—Percentage of Failures in Arithmetic in each grade of the Grand Rapids Schools for the years 1913-14 and 1914-15.

pear, therefore, in the records to which we now turn more failures in particular subjects than non-promotions in general in the various grades. These failures in particular subjects are, how-

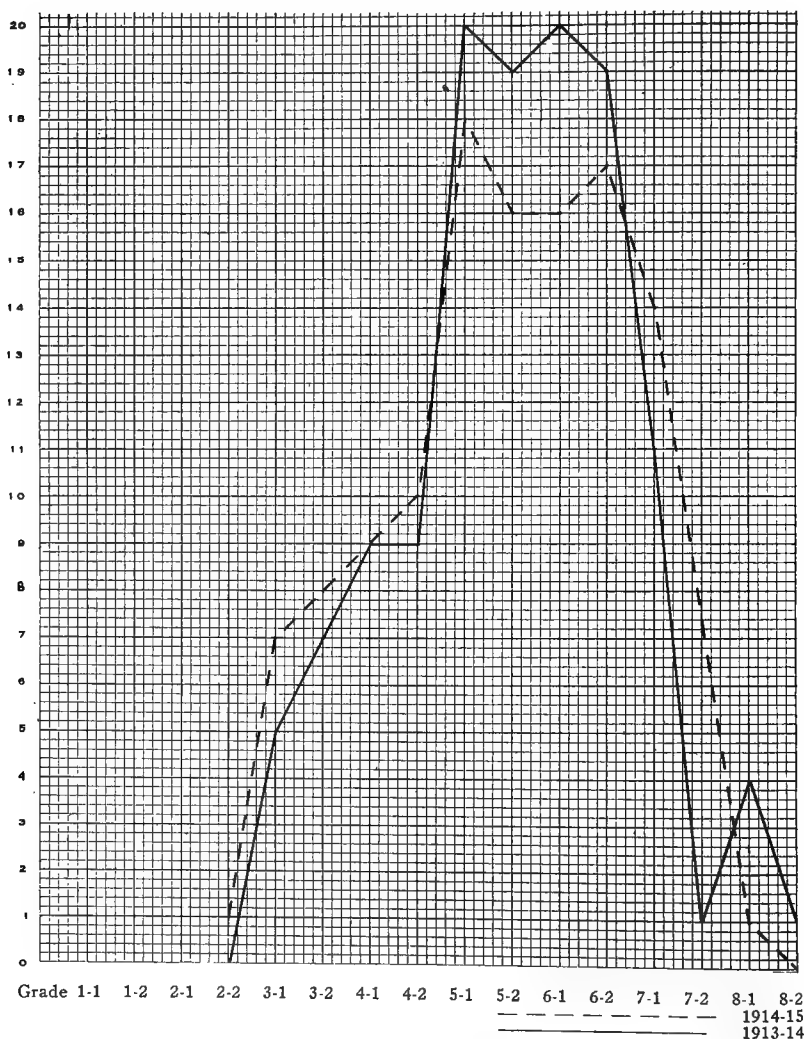


DIAGRAM IV—Percentage of Failures in Geography in Each Grade of the Grand Rapids Schools for the Years 1913-14 and 1914-15.

ever, of great importance in determining the success of the course of study.

Diagrams II and III show the percentage of failures in reading and arithmetic respectively. The reading curve shows a steady falling off in the number of failures in this subject after the II-1 grade. This steady falling off in failures is what we should expect in any subject which is carried through the grades and is uniformly successful in its training of the pupils. Arithmetic, on the other hand, shows a very serious and continuous succession of high percentages of failure from the II-1 grade to the VIII-1 grade. Indeed, there can be no question that arithmetic is the greatest single source of failures in the grades of the Grand Rapids schools.

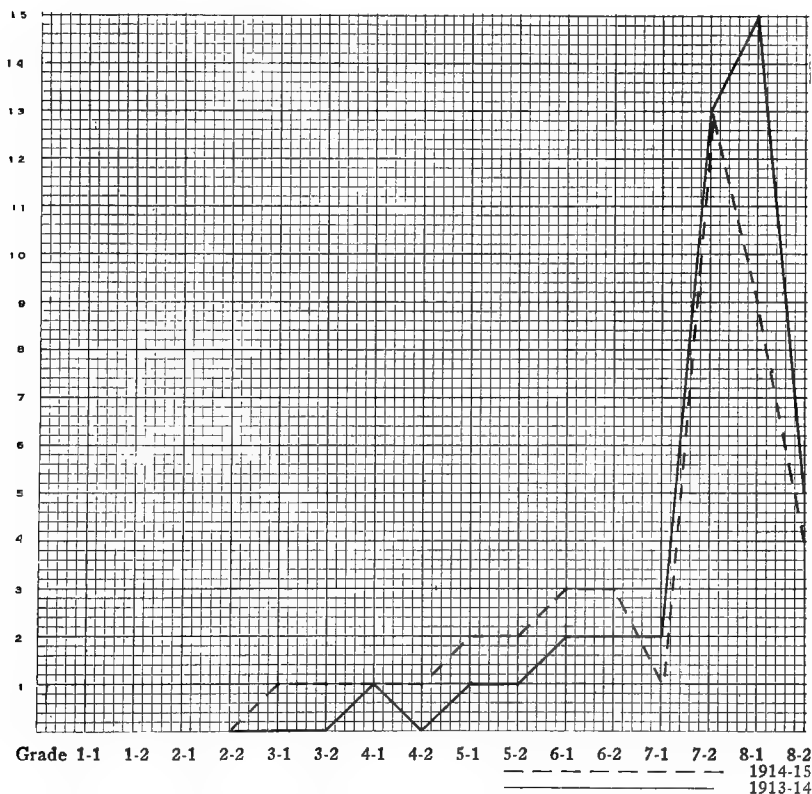


DIAGRAM V—Percentage of Failures in History in Each Grade of the Grand Rapids Schools for the years 1913-14 and 1914-15.

When a course of study produces the percentage of failures here reported for arithmetic, the warning to school officers is loud and clear, whatever may be the satisfactory showing of the pupils in tests. The percentages of failure in arithmetic show that there should be a careful study of possibilities of revision with a view to bringing the subject nearer to the comprehension

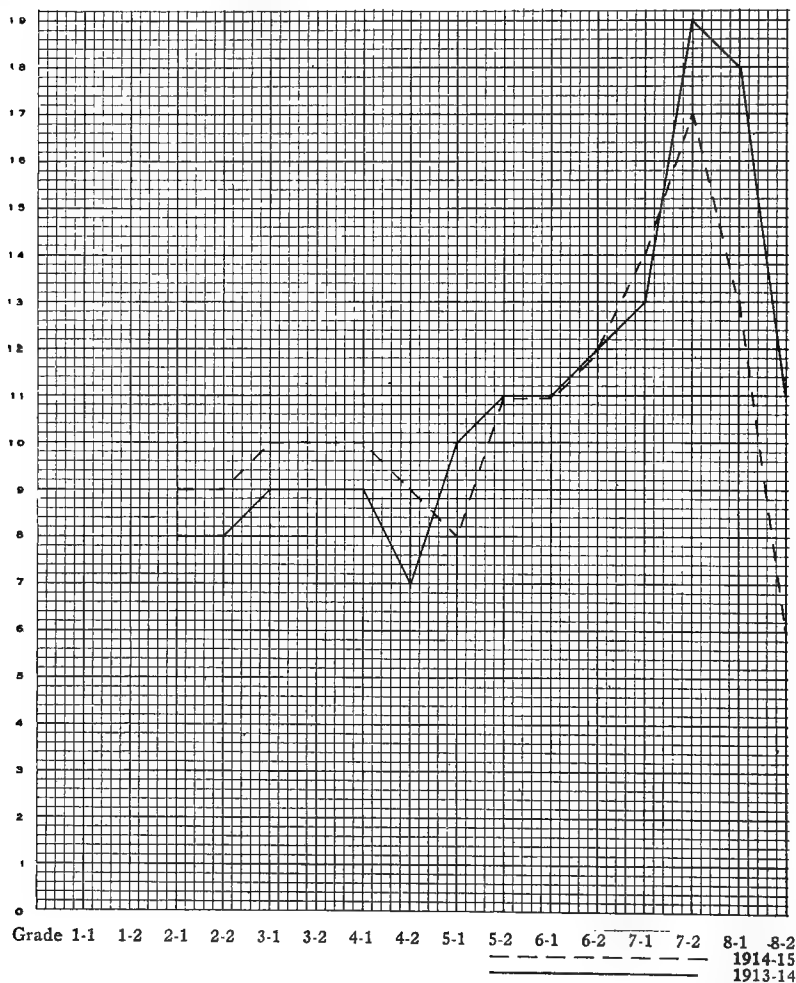


DIAGRAM VI—Percentage of Failures in Language in each grade of the Grand Rapids Schools for the years 1913-14 and 1914-15.

of the children in the various grades or to making it enough more interesting so that the children will devote to it the kind of intellectual effort that will insure success. When a course is carried on at a level where children fail to the extent of 18 to 20 per cent year after year, there must be something wrong in the relation between the children and the school system.

Failures in Other Subjects

The curves for the other subjects may be commented on briefly. Geography is evidently a serious obstacle to the pro-

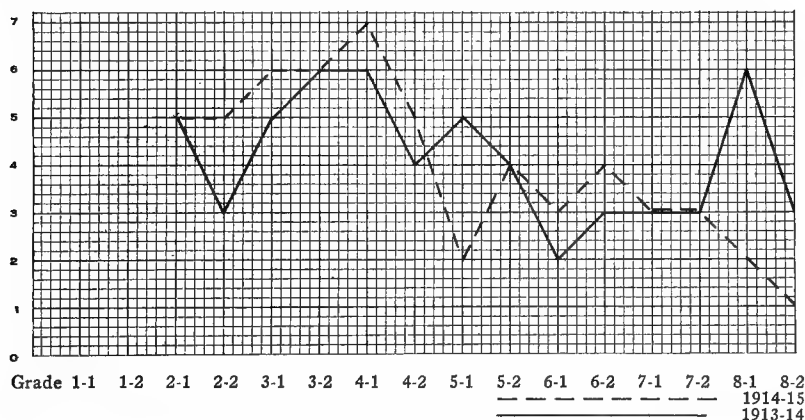


DIAGRAM VII—Percentage of Failures in Handwork in each grade of the Grand Rapids Schools for the years 1913-14 and 1914-15.

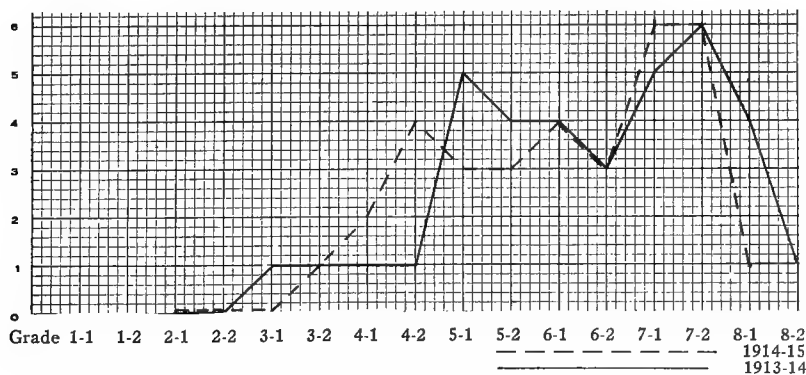


DIAGRAM VIII—Percentage of Failures in Physiology in each grade of the Grand Rapids Schools for the years 1913-14 and 1914-15.

gress of children between the IV-2 grade and the VII-1 grade. In a later part of this report it will be pointed out that the reading taught in the Grand Rapids schools does not train the children in the use of the printed page as fully as it should. The failures in geography are doubtless to be traced in many cases to difficulties in reading. Many children do not know how to get their lessons because their training in reading has been too formal. In some measure this same statement applies also to the difficulties encountered in arithmetic. Difficulties in arithmetic are frequently due to the fact that children do not know how to interpret the problems that are set down in the book. The failures in arithmetic, and still more, those in geography, make it clear that there are unsolved problems in the course of study in the grades.

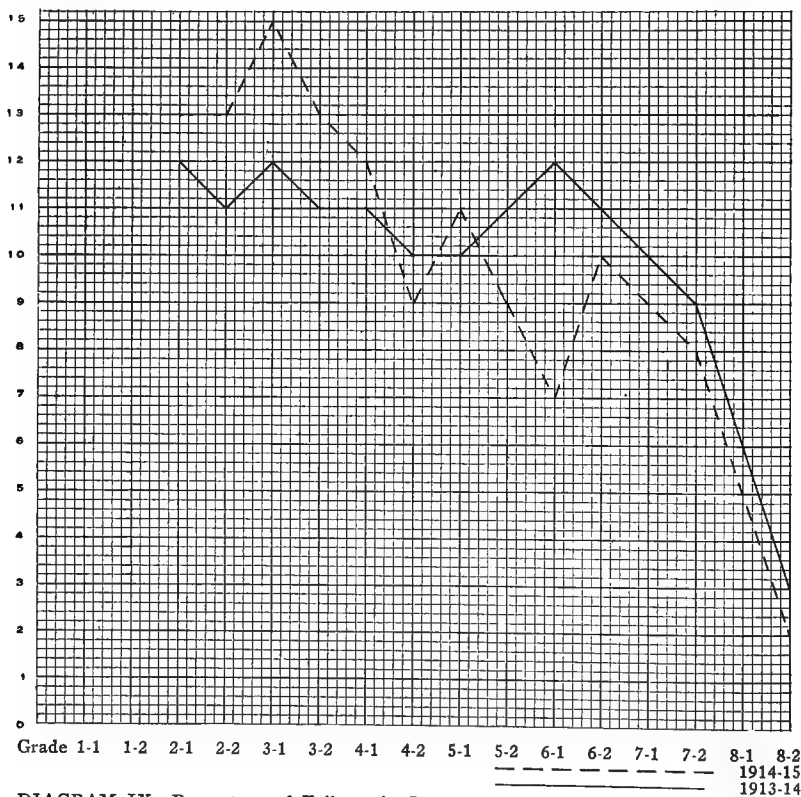


DIAGRAM IX—Percentage of Failures in Spelling in each grade of the Grand Rapids Schools for the years 1913-14 and 1914-15.

History shows a sudden rise of failures in the seventh grade and in one of the years in the VIII-1 grade. In language we have a record which is in some respects the complement of the record in reading. This would seem to indicate the necessity of a very careful scrutiny of the work which is progressively required of the grades in language.

Handwork and physiology appear to be in a class entirely by themselves. They are probably not treated as very serious requirements for promotion. In handwork the large amount of supervision which is given to the work of each child may help to remove the dangers of failure in the course.

The record in spelling is interesting. The difficulties here



DIAGRAM X—Percentage of Conditional Promotions in Each Grade of the Grand Rapids Schools for the year 1913-14 and 1914-15.

do not seem to be as great as in arithmetic but they continue throughout the school course without much relief from grade to grade. There are also some impressive irregularities in this record from year to year which would seem to indicate that the spelling course needs attention.

Percentages of Conditional Promotion

One important reason why these failures in particular subjects do not result in more non-promotions is to be found in the system adopted in Grand Rapids of promoting children on trial. The technical formula is "promoted without recommendation." Diagram X* shows the extent to which promotions of this type are made in the various grades.

This diagram shows that all through the schools about one child in eight, in addition to those who fail to be promoted, is in trouble with the course of study either because his own work is deficient or else because the course is not adapted to his needs. A study of these cases of children who are promoted on trial show that the great majority of them ultimately succeed in doing the work of the grade into which they are advanced. In the first semester of 1913-14 out of 600 children only 96 or 16 per cent failed of promotion at the end of the semester. Forty-seven per cent or 284 were promoted at the end of the semester without condition. One hundred ninety-five of them continued on condition but were advanced at the end of the semester. Twenty-five of them were not reported upon fully because they left the city or were lost sight of in transfer. In the second semester of the same year there were 584 children promoted on trial. One hundred or 17 per cent failed of promotion at the end of the semester. Forty-nine per cent were promoted; 30 per cent were continued on condition and 4 per cent were lost in the calculation. Evidently this system of promotion on trial serves to correct some of the serious difficulties which arise in the administration of the course of study. Children are not held back in many cases where there is evidently reasonable probability of their meeting the requirements of the course.

Attitude of Teachers on Conditional Promotions

The attitude of different teachers in regard to these trial promotions can be discussed on the basis of a questionnaire which was sent out to all of them asking for a statement of the grounds on which they promoted students without recommenda-

*Also Table XV.

tion. They were asked to indicate the considerations which in their minds were of first importance and those which were of secondary importance. Three hundred and seventeen teachers replied to the inquiry. One hundred and forty indicated that the age of the pupils is a major consideration in promotion without recommendation. Two hundred and ten indicated that the length of time which the pupil has been in a grade is a major consideration. On the other hand, only three teachers regard deportment as a major consideration, and only seventy-seven regard the length of time that a pupil expects to remain in school as of importance. One hundred and thirty-six indicate that general scholarship is one of the important considerations even though failure appears in special lines.

Judging from these figures we may say that the child's age and the length of time he has been in school weigh with teachers as direct reasons for advancing pupils. This means that when the question arises whether a child shall stay in a grade for another year or go on, the non-scholastic consideration of the desirability of his going forward with his companions weighs heavily. If the judgment of the teachers is correct in these cases and if scholarship ought to be relegated to a secondary position in the discussion, then there is all the more reason for emphasizing the necessity of a careful consideration of the course of study. The promotion of a child because he has been in a grade for some time can be justified only if we assume that he ought to be allowed to go on and get a new type of work after he has done the best that he can. Some teachers frankly take this position and some school systems have modified the course of study administered to a given child on the explicit ground that promotion is a matter of age rather than a matter of scholastic achievement.

Probably a compromise between the two extreme positions represents the legitimate solution of the problem. A child who is growing old in one of the lower grades is certainly embarrassed by the difference between his size and maturity and the size and maturity of the other members of the grade. If the course of study continues to hold him back in spite of his general normal intelligence, probably the course of study ought to be modified. It is much more legitimate to attempt a modification of the course of study than merely to send the pupil on without undertaking any changes in the course of study which will adapt the work to his needs, or to make him go over again under unfavorable conditions work in which he has once failed.

There are a number of incidental comments made by the teachers in reporting on the reasons for promotion without

recommendation which it may be of interest to reproduce in this report, indicating at once the complexity of the problem of promotion and the desirability of standardizing the judgments of teachers throughout the system. Several teachers report that the pupil's attitude and effort at application should be taken into account whatever the outcome of his work. Some call attention to the importance of giving children of foreign nationalities an opportunity to go on even if they do not succeed in their work because of their lack of command of English. In many cases health considerations are mentioned. Several teachers indicate that they believe in giving the pupils a fresh start by promoting them in spite of failure. A number of teachers take the position quite explicitly that conditional promotion is not desirable and that there ought to be unconditional promotion or no promotion at all.

Need of Principles to Govern Non-promotions

These statements serve to illustrate the necessity of a clearer definition of the grounds of promotion or failure in all of the schools. Furthermore, if we scrutinize the detailed records of particular grades or even of whole school buildings, we shall find that there are marked differences in the non-promotions in different parts of the city. Some of these differences are undoubtedly to be explained by the fact that the children themselves represent different social and intellectual conditions. Many of the non-promotions, however, cannot be explained on this ground and call for a careful consideration on the part of all of the schools of the fundamental principles that underlie non-promotion.

Investigation of Non-promotion by Bureau of Census

The Bureau of Census and Statistics of the Grand Rapids schools made an investigation last year of the causes of non-promotion throughout the schools. The following statement from the officer in charge of that Bureau shows the different kinds of causes which were pointed out by the teachers.

"Herewith I am submitting to you results of the first study of causes leading to non-promotion. The study includes all regular public classes from I-1 to VIII-2 inclusive; and excludes all non-promotions occurring in ungraded or special classes of any nature whatever.

"The total number of non-promotions reported was 1,222. This is 11.23 per cent of the actual number (10,882) on the rolls at the end of the semester.

"Of the 1,222 non-promotions reported on the class records, 1,171

explanations (96%) were available and these are classified for causes as follows:

32.80	Ordinary Dullness
16.70	Lack of Application
12.40	Sickness
9.13	Immaturity
4.50	Kept at Home
4.27	Change of School
4.10	Specific Ailment (Ill Health in School)
2.80	Foreign to English
2.30	General Ill Health
2.30	Unwise promotion
2.13	Home Conditions Discourage Study
1.53	Late Start
1.53	Wrong Sort of Class, Course, or School
1.20	Wrong Attitude
.90	Timidity
.68	Overcrowded class
.34	Incorrigibility
.30	Employment
.09	Discouragement."

It is interesting to note that most of the reasons here set down for non-promotion hold the child responsible for the failure. The assumption which is implicit in this statement that the course of study is certainly all right and is adapted to the needs of the children is an assumption which must be criticised as beyond question over-optimistic. It has been the purpose of this chapter to show this by a comparison of the different subjects. This chapter ought to suggest to every teacher in the system such questions as this: if "ordinary dullness" is the reason for most of the non-promotions, why does ordinary dullness not exhibit itself in reading as frequently as it does in arithmetic. Ordinary dullness has curious ways of cropping out in spots. It would appear from the details presented in this chapter that ordinary dullness is probably a general category used by teachers who have not studied carefully the real causes of failure on the part of the pupils in the grades.

Divergencies in Practices of Schools

Close attention should be given in each of the schools to the practice of the school itself as compared with the general practice of the whole system. Tables XIV and XV show the percentages of non-promotions and promotions on trial for each of the schools in the city system. Several typical cases have been selected and are represented in diagrams XI-XV. These diagrams show different levels of non-promotion in different schools and different types of treatment of the different grades. The diagrams will doubtless be intelligible to any reader who has examined the

TABLE XIV—Continued

GRADE	4-2		4-1		3-2		3-1		2-2		2-1		1-2		1-1	
YEAR	1914	1915	1914	1915	1914	1915	1914	1915	1914	1915	1914	1915	1914	1915	1914	1915
Alexander	8	5	10	2	4	0	2	4	4	5	2	12	12	10	22	34
Buchanan	10	5	9	2	19	5	16	11	19	10	15	17	12	23	18	25
Coit	2	0	0	0	0	0	23	14	9	0	6	13	11	21	0	2
Coldbrook	3	5	16	14	14	10	16	12	18	13	25	15	18	43	30	19
Congress	8	8	13	8	0	3	0	2	0	3	0	0	3	0	6	11
Diamond	3	4	7	4	34	3	10	31	6	3	7	9	5	0	0	0
East Leonard	7	6	4	8	12	19	16	7	11	12	20	4	15	29	29	32
Finey	7	7	11	19	0	6	17	13	0	4	12	15	30	13	0	0
Fountain	15	13	11	18	3	5	3	15	5	9	17	14	2	20	13	21
Franklin	5	12	11	6	9	5	4	3	13	19	32	37	42	0	37	20
Hall	15	12	4	11	14	15	2	16	10	23	18	14	28	17	33	21
Henry	15	12	4	11	20	0	16	20	10	20	17	13	19	0	25	27
Ionia	9	19	13	8	5	11	7	14	10	6	11	2	13	24	29	18
Jefferson	3	0	6	0	0	5	5	3	13	3	0	8	9	10	12	16
Junior High	3	0	6	0	0	5	5	3	13	3	0	8	9	10	12	16
Lafayette	9	31	22	4	12	18	2	15	3	17	28	23	35	11	28	27
Lexington	4	11	12	17	17	21	5	24	10	26	14	19	21	16	26	19
Madison	2	8	0	8	17	13	13	4	2	11	3	0	9	9	29	17
Michigan	4	5	8	24	12	21	9	23	3	0	23	0	9	27	31	9
North Division	5	10	12	6	9	9	9	10	11	10	13	19	11	27	0	71
Oakdale	10	2	5	0	15	4	11	7	12	16	17	12	0	10	19	20
Palmer	5	8	5	8	6	15	8	21	6	14	7	8	6	14	26	20
Pine	10	5	13	7	0	0	5	14	4	16	7	14	8	13	21	11
Plainfield	5	6	4	13	4	11	9	11	0	3	7	8	0	2	2	13
Sheldon	23	10	0	21	24	20	13	20	12	9	41	20	40	19	13	19
Sibley	6	3	8	8	4	1	7	6	1	4	7	10	4	11	10	16
Sigsbee	3	19	3	4	3	6	2	8	0	0	5	6	7	6	24	21
South Division	21	3	2	14	18	9	10	11	6	0	0	5	7	4	22	14
Stocking	2	2	4	2	2	8	0	8	3	7	0	17	11	3	14	12
Straight	6	0	3	0	0	4	3	2	7	0	2	8	0	23	22	22
Turner	3	14	10	6	15	6	9	2	5	7	7	17	5	11	28	27
Union	3	14	10	6	15	6	9	2	7	0	6	21	10	18	0	9
Walker	24	0	0	17	22	0	14	17	0	4	2	4	7	12	15	23
West Leonard	24	0	13	10	22	4	0	7	3	4	4	0	5	13	25	15
Widdcomb	10	5	4	4	0	4	0	7	3	4	4	4	4	5	13	15

TABLE XV

Percentages of Trial Promotions in Each of the Grand Rapids Schools for the Years 1913-14 and 1914-15.

GRADE	8-2		8-1		7-2		7-1		6-2		6-1		5-2		5-1	
YEAR	1914	1915	1914	1915	1914	1915	1914	1915	1914	1915	1914	1915	1914	1915	1914	1915
Alexander	0	7	5	0	38	8	13	15	25	21	21	30	11	5	19	10
Buchanan	0	0	0	18	21	0	12	6	26	21	29	11	22	11	16	25
Coit	15	0	16	4	17	3	0	10	7	4	18	9	19	24	12	19
Coldbrook	15	0	16	4	17	3	0	10	7	4	18	9	19	24	12	19
Congress	15	0	16	4	17	3	0	10	7	4	18	9	19	24	12	19
Diamond	15	0	16	4	17	3	0	10	7	4	18	9	19	24	12	19
East Leonard	15	0	16	4	17	3	0	10	7	4	18	9	19	24	12	19
Finney	15	0	16	4	17	3	0	10	7	4	18	9	19	24	12	19
Fountain	15	0	16	4	17	3	0	10	7	4	18	9	19	24	12	19
Franklin	15	0	16	4	17	3	0	10	7	4	18	9	19	24	12	19
Hall	15	0	16	4	17	3	0	10	7	4	18	9	19	24	12	19
Henry	15	0	16	4	17	3	0	10	7	4	18	9	19	24	12	19
Ionia	15	0	16	4	17	3	0	10	7	4	18	9	19	24	12	19
Jefferson	15	0	16	4	17	3	0	10	7	4	18	9	19	24	12	19
Junior High	15	0	16	4	17	3	0	10	7	4	18	9	19	24	12	19
Lafayette	15	0	16	4	17	3	0	10	7	4	18	9	19	24	12	19
Lexington	15	0	16	4	17	3	0	10	7	4	18	9	19	24	12	19
Madison	15	0	16	4	17	3	0	10	7	4	18	9	19	24	12	19
Michigan	15	0	16	4	17	3	0	10	7	4	18	9	19	24	12	19
North Division	15	0	16	4	17	3	0	10	7	4	18	9	19	24	12	19
Oakdale	15	0	16	4	17	3	0	10	7	4	18	9	19	24	12	19
Palmer	15	0	16	4	17	3	0	10	7	4	18	9	19	24	12	19
Pine	15	0	16	4	17	3	0	10	7	4	18	9	19	24	12	19
Plainfield	15	0	16	4	17	3	0	10	7	4	18	9	19	24	12	19
Sheldon	15	0	16	4	17	3	0	10	7	4	18	9	19	24	12	19
Sibley	15	0	16	4	17	3	0	10	7	4	18	9	19	24	12	19
Sirabee	15	0	16	4	17	3	0	10	7	4	18	9	19	24	12	19
South Division	15	0	16	4	17	3	0	10	7	4	18	9	19	24	12	19
Stocking	15	0	16	4	17	3	0	10	7	4	18	9	19	24	12	19
Stoughton	15	0	16	4	17	3	0	10	7	4	18	9	19	24	12	19
Straight	15	0	16	4	17	3	0	10	7	4	18	9	19	24	12	19
Turner	15	0	16	4	17	3	0	10	7	4	18	9	19	24	12	19
Union	15	0	16	4	17	3	0	10	7	4	18	9	19	24	12	19
Walker	15	0	16	4	17	3	0	10	7	4	18	9	19	24	12	19
West Leonard	15	0	16	4	17	3	0	10	7	4	18	9	19	24	12	19
Widdicombe	15	0	16	4	17	3	0	10	7	4	18	9	19	24	12	19

earlier diagrams in this chapter. No special comment is necessary in explanation of each of the diagrams. It is suggested that the principals ought to make a careful study of their own buildings using the methods here suggested and they ought to confer with their teachers until they succeed in developing a well-defined policy which will stand the test of comparison and analysis.

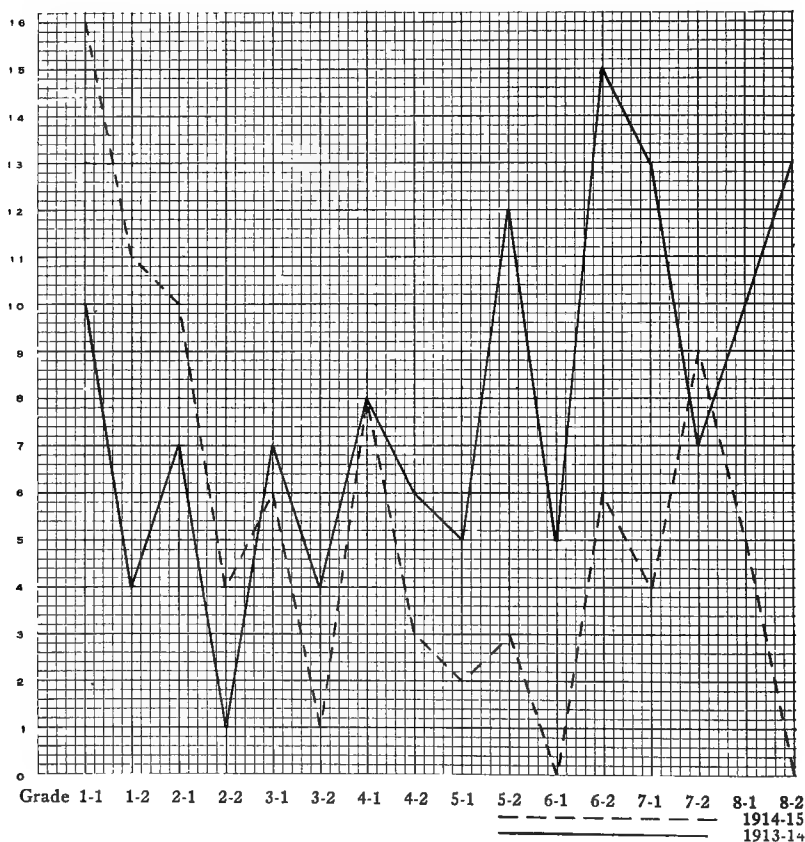


DIAGRAM XI—Percentage of Non-promotions in each grade of the Sigsbee School for the years 1913-14 and 1914-15.

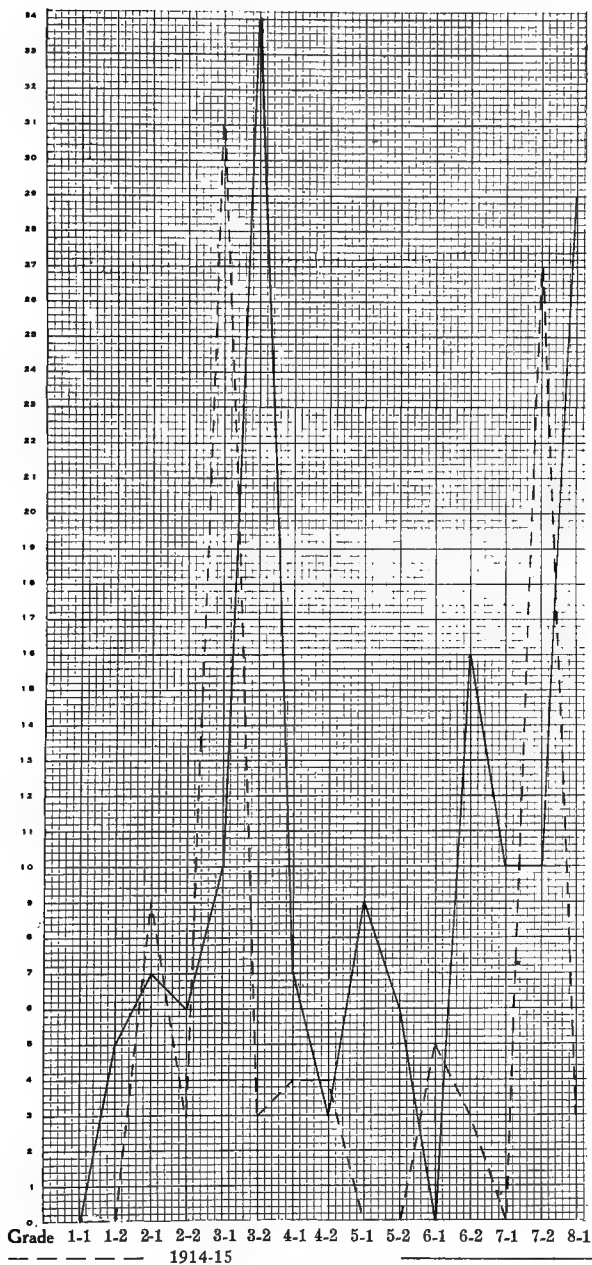
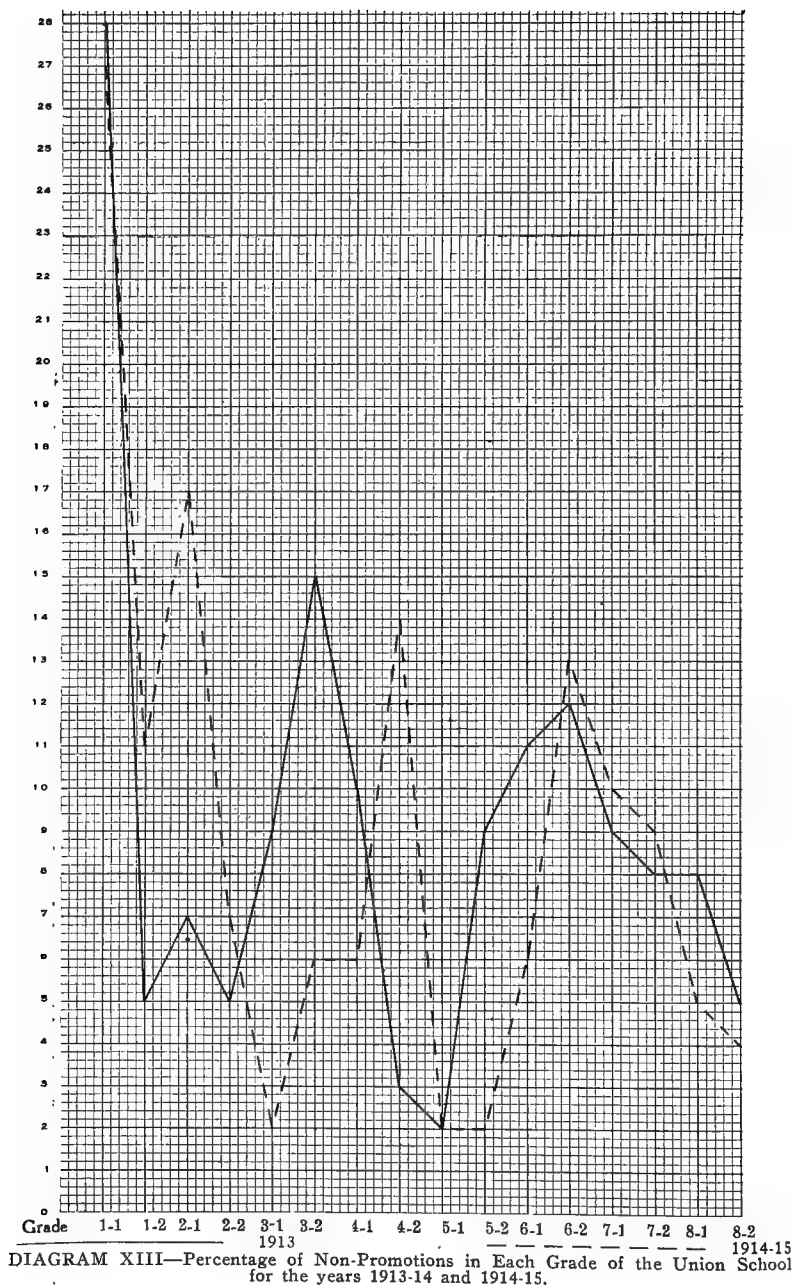


DIAGRAM XII—Percentage of Non-promotions in each grade of the Diamond School for the years 1913-14 and 1914-15.



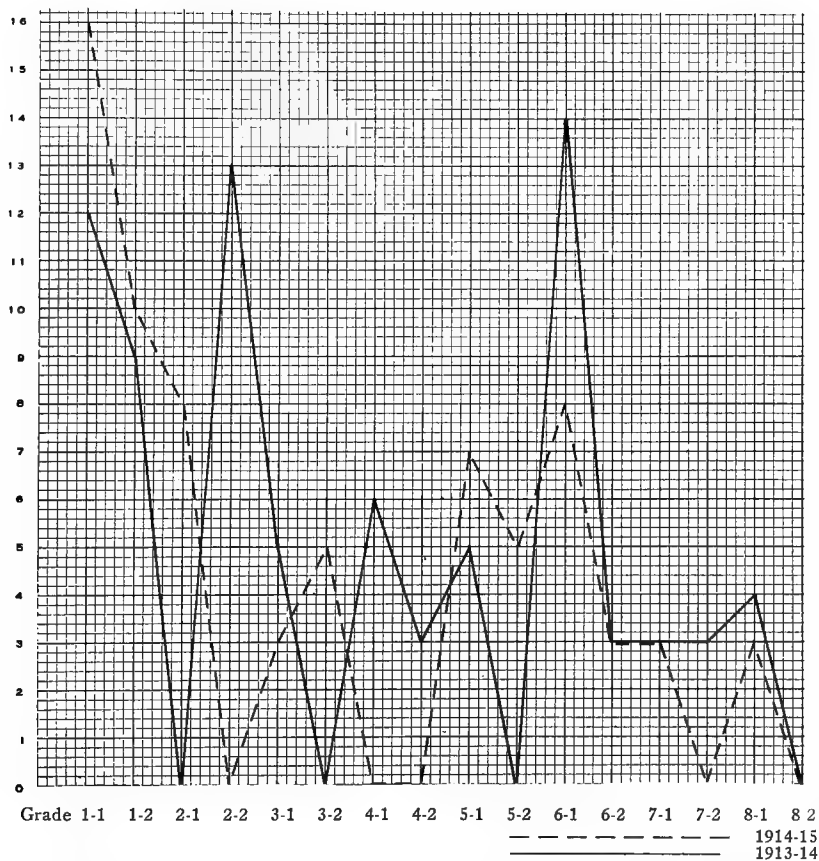
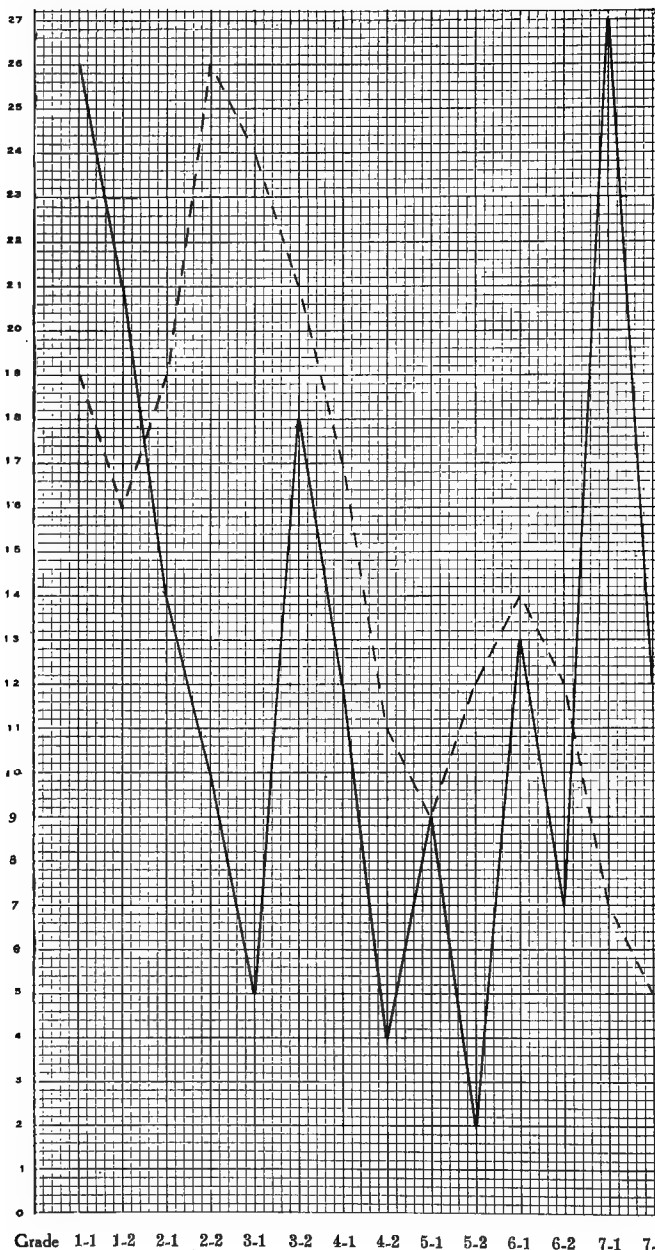


DIAGRAM XIV—Percentage of Non-promotions in each grade of the Lafayette School for the years 1913-14 and 1914-15.



Grade 1-1 1-2 2-1 2-2 3-1 3-2 4-1 4-2 5-1 5-2 6-1 6-2 7-1 7-2
 1913-14 1914-15
 DIAGRAM XV—Percentage of Non-promotions in each grade of the Madison School
 for the years 1913-14 and 1914-15.

CHAPTER III

INTRODUCTION TO TESTS

The chapters immediately following present in detail the results of a number of tests which were tried in the elementary schools. These tests are not in any sense of the word exhaustive. They do not deal with all phases of elementary-school work. They do, however, select certain examples of this work which it is possible to evaluate with a good deal of precision. Only the more formal phases of school work are susceptible to quantitative evaluation. The tests emphasize, therefore, the formal elements of school work.

It has sometimes been objected to tests that they do not get at the essential phases of instruction. The answer to this statement is that long experience has shown that the best schools accomplish not only the higher instruction of pupils but also provide them with the formal elements of all of the subjects. Good schools always show good records in these tests. Wherever there is a failure to attend to the details of instruction there is always an essential deficiency in the work itself. To be sure there are cases where these details are attended to, but where the school suffers from formalism in the instruction. A high rank in a formal test does not, therefore, mean in every case excellent work in the school. The tests in reading overcome to a very high degree the difficulty here pointed out. The results of all the tests are offered, therefore, as examples of what the schools are achieving in their classroom work. If these samples of their work are good, it may be assumed that in general the work is of a satisfactory type.

In the second place, the tests throw light on the possibilities of reorganizing and enlarging in detail the instruction in the particular subjects with which the tests deal. It is hoped that the suggestions which are offered in the succeeding chapters may serve to stimulate a general consideration of the courses of study for the purpose of adjusting these courses in all their stages to the needs of pupils.

CHAPTER IV

READING

William S. Gray

As shown in the chapter on non-promotion and failures, reading is a subject in which steady improvement is recorded throughout the grades. In testing reading, therefore, we shall be able to determine not only the degree of success attained in this particular subject, but we shall also deal with a very fundamental part of the course of study and one which, in the judgment of the teachers, is well done.

Furthermore, the chapter on curriculum emphasizes from another point of view the great importance of reading as a part of the course of study.

This chapter will be devoted to a report on systematic tests carried on throughout the grades. For this purpose, certain passages were used which have been carefully graded to suit the abilities of school children, and have been given to pupils in a number of other school systems. A double advantage arises from the use of material which has thus been rated by previous use. First, the material is standardized and, second, the earlier studies yield comparative results which may be used to supplement the results obtained in Grand Rapids.

These standard passages must be used, if the results are to be exact, under conditions that are as nearly uniform as possible. To this end the principals were called into conference and were given a demonstration and explanation of the tests. During the week of the testing, the writer circulated among the schools and saw the reading in the classes and also observed some of the testing. The tests were given by the principals themselves and by their assistants, usually in the principal's office where the work was free from the distraction of class work.

Finally, it has been shown in earlier studies made in other schools, that the distinction between oral and silent reading is a distinction of first importance. This distinction was observed

in the standard tests and will be emphasized throughout the chapter. Justification for this distinction will come out more fully in later paragraphs. For the purposes of introduction, it is enough to remark that the importance of silent reading is not recognized as fully as it should be. In the primary grades of the elementary school special emphasis has usually been given to oral reading. This type of reading proves to be appropriate and economical during that period in which the pupil is mastering the fundamental steps in reading. During the intermediate and upper grades the pupil is frequently called upon to read orally in connection with many class exercises. On the other hand, the pupil soon learns to use reading as a means of securing ideas for himself and he substitutes silent study for oral reproduction. During the larger part of his school life the progress of a pupil depends upon his ability to master the thought of the printed page during periods of silent study. Furthermore, under most ordinary situations of life, one reads silently for the purpose of gathering ideas and not for the purpose of oral exhibition. With this recognition of the very great importance of silent reading it is quite clear that the quality of instruction in reading must be determined upon the basis of achievement both in oral reading and in silent reading.

Tests in Oral Reading

Oral reading tests were given to 4,066 pupils in thirty-seven schools. They were distributed among the grades from the first to the eighth as follows:

666	first-grade pupils
609	second-grade pupils
553	third-grade pupils
555	fourth-grade pupils
507	fifth-grade pupils
494	sixth-grade pupils
386	seventh-grade pupils
296	eighth-grade pupils

The advanced section of each grade represented in the above-mentioned schools was tested. In general, between 15 and 20 pupils were tested in each section. This number is sufficiently large to justify somewhat rigid comparisons between the achievements of different classes.

The oral reading test consisted of a series of twelve passages arranged in the order of increasing difficulty. As each child was reading a record was made of the number of seconds required to read each paragraph and of the number of errors which were made of the following types:

- (a) Gross mispronunciations, which include such errors in

pronunciation as indicate clearly that the word is too difficult for the pupil to pronounce.

(b) Minor mispronunciations, which include the mispronunciation of a portion of a word, wrong accent, wrong syllabication, omission of syllables, etc.

(c) Omission of words.

(d) Insertion of words.

(e) Repetition of words or groups of words.

(f) Substitution of one word or group of words for another.

Furthermore the principals who gave the tests made a record of the quality of the reading in terms of *a*, *b*, or *c*. If the reading was very well done, this fact was indicated by placing an *a* before the paragraph. If, on the other hand, the reading was very poorly done from the standpoint of expression, the fact was indicated by placing a *c* *above the paragraph*. These records of quality show that the time records and records of errors can be relied on as satisfactory measures of the child's reading ability. In nearly every case a pupil received a quality mark of *a* if the paragraph was read at a normal rate with not more than one or two errors. On the other hand, as the number of errors increased and as the rate decreased the quality mark which was recorded was *b*, or *c*. These results suggest that when pupils read very poorly, the reason may be sought in the fact that they are assigned material which presents too many difficulties for them.

The oral reading scores which are used in this report are calculated on the basis of the time required to read a paragraph and the number of errors made. The reduction of each child's record to a simple numerical statement is based on a system of scoring which turns into quantitative terms the fact that a paragraph should be read in a certain amount of time with a limited number of errors. If, now, the pupil exceeds the amount of time which has been found in earlier investigations to be common and if the number of errors increase, the amount of credit which he gets for reading a paragraph should be proportionately reduced. The total score for an individual is found by calculating the total amount of credit due the pupil on all the paragraphs which were read. The average class score is found by calculating the arithmetical average of all the individual scores in the class. A more detailed description of the test and of the methods of scoring may be found in the *Elementary School Journal*, February, 1916.

The average score for each grade in which the tests were given appears in Table XVI. The median* and average scores

*The median score is the score of that individual above and below whose score lie half of the class.

for each grade are indicated at the foot of the table. These average scores are used as the basis for comparison in the diagrams which will follow.

One further word of explanation is necessary in order that the diagrams in which the results are presented may be readily understood. Ability to read a certain passage without error means less on the part of the pupil in the upper grades than on

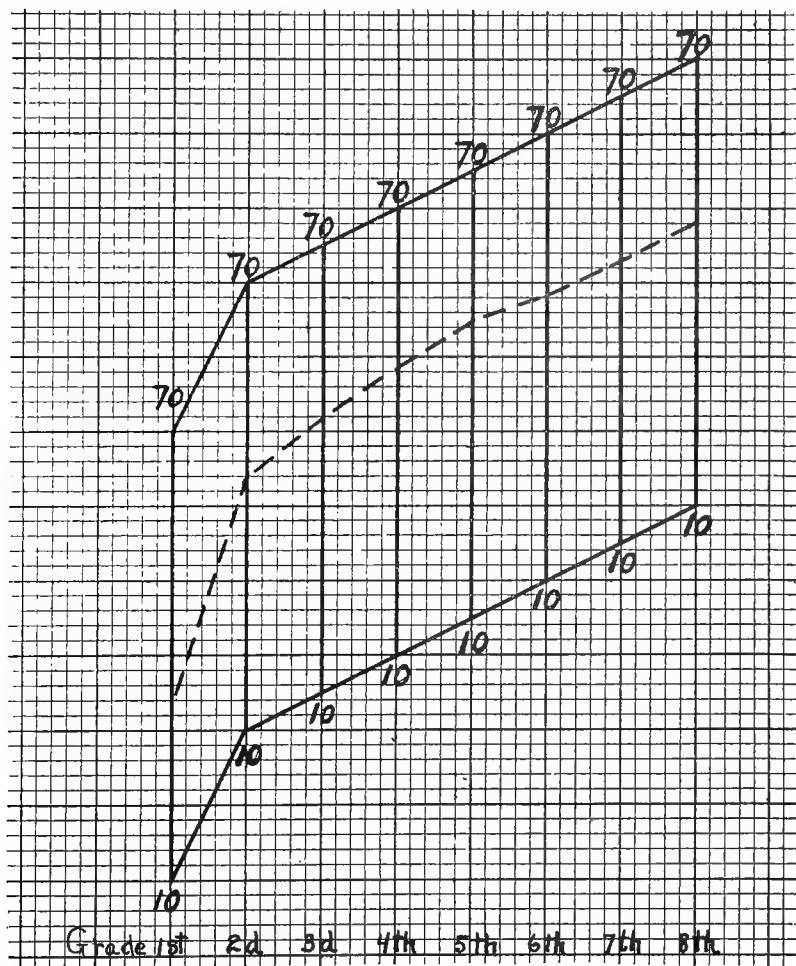


DIAGRAM XVI—Progress of 4066 pupils in Oral Reading.

the part of a pupil in the lower grades. Grades must be compared with each other, therefore, by recognizing different levels of expectation. These different levels as determined from four thousand tests, can be expressed graphically as indicated by the vertical lines in Diagram XVI. Each vertical line represents the scale for a grade and begins below at the point where the score of 10 should be represented. Higher scores can be represented by appropriate distances along the vertical line above 10. In Diagram XVI the vertical lines end at the points where the score of 70 belongs for each grade. The full drawn oblique lines above and below connecting the successive 70's and 10's, respectively, indicate the curves of progress which would result if in the one case all scores were 10 or if in the other case all scores were

TABLE XVI

AVERAGE SCORES IN ORAL READING FOR 37 SCHOOLS OF GRAND RAPIDS

SCHOOLS	First Grade	Second Grade	Third Grade	Fourth Grade	Fifth Grade	Sixth Grade	Seventh Grade	Eighth Grade
Junior	---	---	---	---	---	48	43	49
South	---	---	---	---	---	---	46	46
Union	28	32	48	42	50	45	48	48
Alexander	12	42	47	42	47	45	44	---
Buchanan	7	37	46	46	46	46	45	---
Coit	53	47	47	51	48	---	---	---
Coldbrook	11	44	44	44	51	51	48	46
Congress	42	52	54	50	50	---	---	---
Diamond	43	42	50	50	46	47	47	48
East Leonard	54	47	56	47	55	48	50	41
Evangeline	---	36	---	48	---	54	49	40
Finney	40	39	---	---	---	---	---	---
Fountain	45	58	53	56	56	---	---	---
Franklin	6	40	47	44	47	46	40	46
Hall	40	46	42	47	49	41	42	43
Henry	60	53	54	57	57	---	---	---
Ionia	---	48	52	---	---	---	---	---
Jefferson	17	47	47	51	53	53	48	---
Lafayette	51	49	50	54	55	49	51	48
Lexington	27	54	54	53	50	49	50	49
Madison	46	47	39	52	50	46	---	---
Michigan	29	44	44	51	46	47	---	---
North Division	23	49	46	47	---	---	---	---
Oakdale	7	32	33	37	37	35	---	---
Palmer	30	39	44	47	46	48	44	45
Pine	35	44	47	48	52	44	44	---
Plainfield	61	47	51	51	49	50	47	---
Sheldon	12	44	45	49	48	44	---	---
Sibley	31	42	53	54	51	45	---	---
Sigsbee	47	50	54	50	53	54	51	50
South Division	7	41	33	51	50	52	48	48
Stocking	22	32	44	45	---	---	---	---
Straight	38	52	52	45	45	45	50	---
Turner	45	---	---	---	---	50	---	---
Walker	35	46	47	44	48	46	48	---
West Leonard	62	41	---	---	---	---	---	---
West Leonard	21	44	41	41	---	---	---	---
Widdicomb	11	53	46	57	53	54	---	---
Median	7	---	---	---	---	---	---	---
Average	35	44	47	49	50	47	48	48
	35	44	47	49	50	48	48	48

DIAGRAM XVII—Average oral reading score among 4066 pupils in Grand Rapids, 2193 pupils in Cleveland and 1106 pupils in Illinois.

DIAGRAM XVIII—Average oral reading scores in each grade in all schools and in two selected schools.

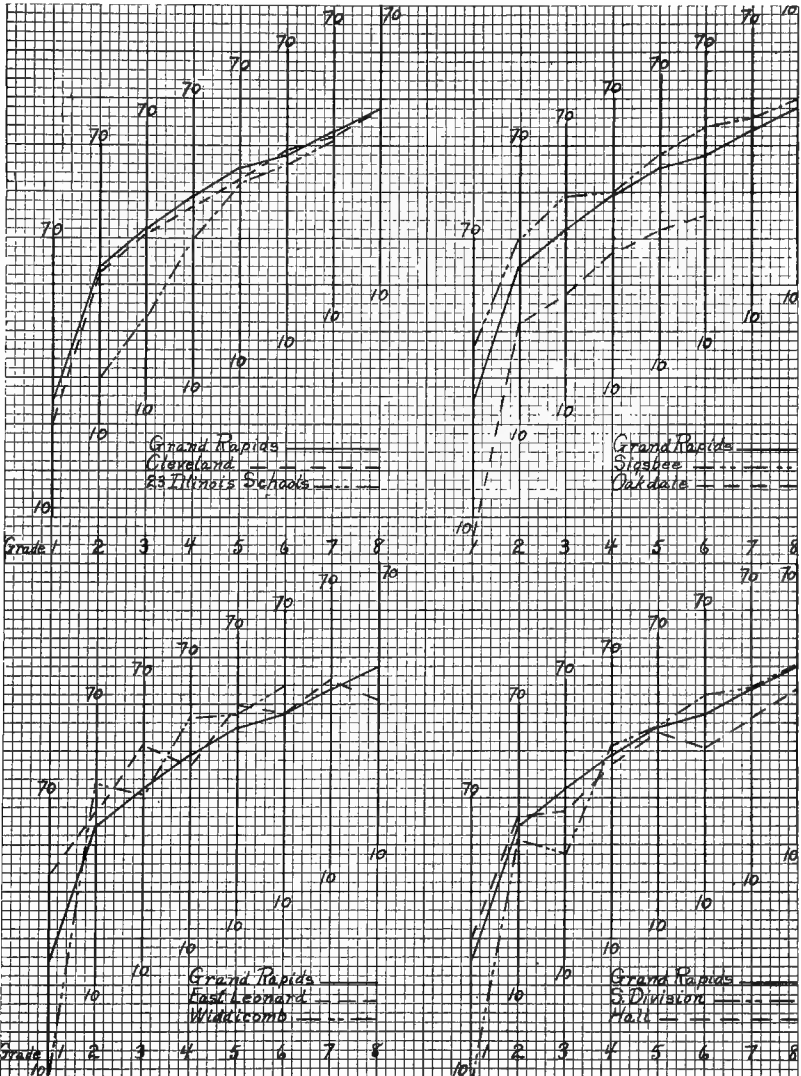


DIAGRAM XIX—Average oral reading scores in each grade in all schools and in two selected schools.

DIAGRAM XX—Average oral reading scores in each grade in all schools and in two selected schools.

70. The dotted line near the middle of the figure represents the average score in oral reading of all the schools in Grand Rapids which were tested.

Achievement in Grand Rapids as Compared with Cleveland, Ohio

In Diagram XVII the average achievement in Grand Rapids is compared with the average scores of the largest single school system thus far tested, namely, the city of Cleveland. The diagram shows that in all grades excepting the sixth the average scores of Grand Rapids are superior to the corresponding scores of Cleveland. This comparison becomes very significant by making a further comparison with the average scores of six grades of twenty-three schools in Illinois which were tested before Cleveland. The contrast in favor of Grand Rapids is even stronger than in the case of Cleveland. Furthermore, the tests were given in Grand Rapids three months earlier in the school year than they were given in Cleveland or in the Illinois schools. These facts indicate very clearly that the efficiency of instruction in oral reading in Grand Rapids is very high indeed.

Variations in Schools

More significant for the improvement of instruction, however, is the comparison of the achievement of a number of schools with the general average for Grand Rapids itself. Such internal comparisons within the system might advantageously become a part of the regular routine of supervision. In Diagram XVIII the achievements of Sigsbee School and Oakdale School are compared with the general average of Grand Rapids. The diagram shows that Sigsbee School does very well in all grades. The achievement in the first grade is distinctly above the average and this superiority is maintained in general throughout the grades. Oakdale School, on the other hand, makes a poor start in the first grade and fails to rise to the general average of achievement at any point.

In Diagram XIX the achievement of East Leonard School and Widdicomb School is compared with the general average. The point of significance in connection with this diagram is the fact that progress from grade to grade in each school is irregular. The type of progress which is here represented is characteristic of a large number of schools, as revealed by the scores in Table XVI. This situation suggests that there is need of a clearer definition of the results which should be secured. Such clearer

definitions are required in all subjects. They can be worked out only when teachers and supervisors come to a full recognition of the fact that a school system is properly organized only when its different units are working together for well-recognized ends.

Diagram XX shows similar results for Hall School and for South Division School. Hall School makes a very fair start in the first and second grades, but for some reason follows an irregular course below the average from the third grade on. South Division, on the other hand, makes a poor start during the first three grades and then maintains a level above the average from the fourth grade on. These results suggest that the work in the primary grades at South Division School and in the intermediate and upper grades at Hall School should be carefully examined with a view to finding out the causes of the difficulties in these grades.

These typical diagrams can be paralleled by a number of schools included in the table. Furthermore, the schools and grades of the system should be encouraged to work out periodically similar statements of their progress so that they may check up their results and secure uniformly high results where now there is irregularity and at certain points low achievement.

Interpretation.

The tests which were given to the pupils of Grand Rapids have shown that the results secured by the city as a whole are very satisfactory. Therefore, whatever criticism is offered because of failure to secure results must be directed at individual schools rather than at the system as a whole. In order to determine the causes of the wide variations in the achievement of various classes, seventy-four recitations in reading were observed, and some of the typical observations are here recorded.

One outstanding difference between the instruction of primary classes relates to the relative emphasis which is given to the thought of the selection and to the mechanics of reading by the teacher. It is commonly agreed that the problem of first-grade reading is to gain a mastery of the fundamentals. This may be done by concentrating attention upon the mechanics of reading or by making the mechanics of reading incidental to the mastery of the thought. Most of the teachers of Grand Rapids hold the view that it is the better plan to begin by making reading a thought-getting exercise, inasmuch as pupils should associate reading with thought-getting. The teachers concentrate attention on the thought side, however, with varying degrees of suc-

cess. The following observations illustrate this point. In one school the teacher began the lesson with the following questions: "What were the little people doing in yesterday's lesson? To what kind of place were they going? What do we want when we go to a picnic besides a good place to play? This mother had planned a surprise for her children. Study the first page to yourself to find out what she did. If you find any hard words, tell me what they are and I shall write them on the board for our study." Such directions and questions gave purpose to the reading, stimulated interest and enjoyment, and resulted in thoughtful participation in the study of the lesson.

The opposite kind of results may be illustrated as follows: The lesson was introduced by asking the pupils to look at the title and tell what the story was about; the new words were sounded; each word was worked out analytically. While this method may have resulted in the development of some power to analyze words, it detracted attention from the thought of the story, with the result that the pupils were not interested and they were inattentive. The reading which followed was lifeless and very poor, indicating that reading was a mechanical, uninteresting procedure with the class. The type of drill which was given in this class should be relegated to some special drill period in which word study is made the fundamental problem. Teachers should guard against destroying the pupils' interest in reading by conducting the necessary drill exercises during periods in which little, if any, reading is done.

Second and Third Grade Reading

The high average scores attained by the pupils of the second and third grades may be explained by the fact that the pupils of these grades have abundant opportunity to read orally. A large number of pages are read during each recitation. The vigor with which the pupils read and the readiness with which they attack new selections indicate that the fundamental phases of oral reading have been pretty well mastered by the end of the third grade. The variations in the achievement of the classes of these grades are accompanied by variations in the spirit and methods of the classroom. Fountain School, which ranks very high in oral reading achievement, has organized its work with great care. The work of the morning is known as literary reading, at which time considerable attention is given to matters of pronunciation, enunciation, expression, meaning, etc. In the afternoon the pupils read primarily for information. This reading is done at sight in connection with some problem in which the class is interested. At the time that the class was

visited they were working on the problem of how cotton is grown and harvested. The pupils not only read the story, but contribute interesting facts which they have discovered outside of the classroom and bring in interesting objective materials which relate to the problem at hand. At the end of the day the pupils write significant sentences based on the work of the hour and at the end of the week the pupils write stories based on the readings of the past few days. By these devices the information to be secured is kept foremost in mind. Whenever it is needed the teacher gives effective help on difficult words, but she does this in a quiet way so that interest and attention are not taken from the main thread of the story. A list is kept of the words upon which help is needed and at the close of the exercise or in some special drill period these words are emphasized. This type of oral reading procedure should be introduced more widely in the second and third grades of Grand Rapids.

In contrast with the illustration just given, the reading recitations of some of the classes which rank low in the oral reading test were lifeless and monotonous. The work of one day did not carry over to the next. Attention was centered primarily on the pronunciation of words. The recitation was constantly interrupted to correct minor errors. The pupils read with little interest and vigor. Principals who find this type of teaching carried on by teachers under their supervision should begin remedial measures at once. The teachers should be called together to discuss the problems of teaching reading. Demonstration lessons might be taught to illustrate certain points. Plans for teaching a given lesson might be outlined and discussed. Inasmuch as the teachers in a number of the schools are in need of help, it is recommended that a series of conferences be carried on by teachers of the entire city. These conferences should form a clearing house in which the most effective methods of securing results in reading will be demonstrated and discussed. Furthermore, a list of the most successful teachers of reading should be made available so that principals could send their teachers who are in need of help to visit recitations in reading in schools where the work is admittedly good.

The work in oral reading continues throughout the intermediate and upper grades. In connection with the discussion of silent reading it will be shown that a part of the time now given to oral reading in these grades should be devoted to silent reading. It is our purpose at present to point out two reasons for variations in oral reading achievement in the intermediate grades.

Fourth, Fifth and Sixth Grade Reading

In many of the classes which rank low there was clear evidence that the teacher had made no specific preparation for teaching that particular lesson, depending in a vague general way for the day's work on her own ability to read and on her previous contact with the selection. The purpose of the recitation was in these cases general and hence vague. Errors were indeed corrected and a few suggestions were offered concerning the thought of the selection. Whatever comments were made by the teacher came to her mind apparently at the moment they were offered. These suggestions dealt with details and failed to bring into prominence the larger and more significant points of the lesson. Recitations conducted in this way do not give enough positive instruction. To be guided primarily by the demand that errors be corrected is in reality to be dominated by a negative aim. Teachers who worked with a vague purpose failed to realize that some selections should be read quickly to enjoy the story, while other selections should be read with a greater amount of care to determine the major points and the supporting details, to weigh the relative value of the various points of the lesson, to get the finer meanings of certain passages, or to appreciate certain descriptions and allusions. Unless a teacher makes definite preparation before the reading exercise, it is almost certain that she will not appreciate the most significant points of the lesson and she will not be able to direct the thought of the pupils along the most profitable lines. A comparison of the scores which were received by various classes with the notes which were made while visiting recitations in reading reveals the fact that there is close correlation between low scores on the one hand and poor preparation and lack of purpose by the teacher on the other.

Another noticeable difference between the work of schools which ranked high and schools which ranked low relates to the motive or purpose which stimulated the pupils. In two of the better schools effective results in oral reading were secured as follows: One fifth-grade class secures good oral reading in connection with its civic club. Thirty minutes are spent each week in a meeting of the club. Members are expected to choose selections which are appropriate for the program of the day and to read them before the group. Each pupil has a real purpose for reading and the audience situation which confronts him calls forth his best efforts. Although far less time is devoted to oral reading in this school than in many other schools, the results are superior throughout. It seems reasonable to assume that the pupil who puts forth his best efforts in a thorough preparation

of one selection which he will read with a real purpose will make more progress than the pupil who reads several selections in a half-hearted way. In a second school the pupils read several pages to determine the answer to a problem which has been held over from the preceding lesson. At the conclusion of the study period the pupils participated in a lively discussion of the question at issue. Pupils differed frequently during the discussion. They had been trained to refer to the text under such conditions and to read to the class the statements which supported their point of view. Several parts of the selection were read a number of times, but each time the pupil who read had a definite purpose and he read effectively.

In contrast with the vigorous reading exercises just described a number of uninteresting, lifeless recitations were observed. In one class the pupils were reading the story of Ulysses. After each paragraph had been read, several questions were asked to determine whether or not the pupil had understood the passage. Two or three pupils were then asked to re-read the same passage. The teacher gave her chief attention to the correction of such errors as "peaceful" for "peacable." After ten minutes of this type of exercise the class had read only three paragraphs and it is needless to say the pupils had lost all interest in the recitation. Oral reading of the type just described accomplishes very little for pupils of the intermediate grades.

Seventh and Eighth Grade Reading

The conception of reading as an oral exercise is largely accepted in the seventh and eighth grades. This view will be criticized in connection with the discussion of silent reading. It is to be said here that the oral exercises are usually taken up as follows. The selections are first studied silently. Questions are then asked about the words. Later the selections are read and discussed. Some of these exercises proved to be very effective. They were characterized by interest, and earnest endeavor was apparent on the part of the pupils. In many instances, however, the discussions became too detailed and analytic. In one class which was reading about Washington the following questions were asked: "Who was Washington? Who wrote this story? Who was Jefferson?" Several words which had been listed on the board were pronounced at this point. Eight or ten lines were then read silently, followed by these questions: "Name three things which were told about Washington. (The final answer secured was, 'He had a good mind, great power of penetration, and good judgment.') What is the difference between mind and judgment? What is the connection between *judicious*-

ly and judgment? What part of speech is *judiciously*?" After eight minutes spent in this way the teacher was forced to turn to another lesson because the pupils were entirely lost.

Tests in Silent Reading

At the same time that the pupils were tested in oral reading, they were also tested in silent reading. The silent reading test was omitted in the case of first-grade pupils. After the oral reading test had been completed by a pupil, new passages were used for the silent reading tests. The tester recorded in this case the rate of reading. By means of written reproductions of what was read and by answers to questions concerning the subject-matter of the test, the pupil gave evidence as to his comprehension of what he had read. Three selections were used in the silent reading test in order to suit the subject-matter to the maturity of the pupils of the different grades. The easiest selection, entitled "Tiny Tad", was read by pupils of the second and third grades. The second selection, entitled "The Grasshoppers", was read by pupils of the fourth, fifth and sixth grades, and the hardest selection, entitled "Ancient Ships", was read by the pupils of the seventh and eighth grades. The relative difficulty of these selections had been previously determined by tests given to 2654 pupils in thirteen cities.

The Rate of Silent Reading

The average rate at which a class reads silently was determined by finding the average number of seconds required by a class to read one hundred words. This result was then expressed in terms of the number of words read per second. The average rate at which each class that was tested read is shown in Table XVII. The median and average rates for each grade are indicated at the foot of the table. The average rate by grades was found by determining the average number of seconds required by all pupils of a given grade to read one hundred words. This result was then expressed in terms of the number of words read per second.

The rate at which pupils of Grand Rapids read is compared with the rate at which pupils of other cities read in Diagram XXI. Since three selections were used in the silent reading test, a readjustment has been necessary in the diagram. The points of this readjustment are between the third and fourth grades, and between the sixth and seventh grades. In Diagram XXI, dotted, vertical lines are drawn at each of these points.

TABLE XVII
AVERAGE RATES IN SILENT READING FOR 37 SCHOOLS OF
GRAND RAPIDS

SCHOOLS	Second Grade	Third Grade	Fourth Grade	Fifth Grade	Sixth Grade	Seventh Grade	Eighth Grade
Junior					2.86	2.81	3.03
South						2.78	2.94
Union	1.02	1.75	1.85	2.63	2.44	2.56	2.50
Alexander	1.54	2.50	2.27	2.13	2.70	2.27	
Buchanan	1.09	2.13	1.82	2.04	2.18	2.33	
Coit	1.25	1.64	2.44	2.13			
Coldbrook	1.72	1.96	2.94	3.33	3.33	3.33	2.70
Congress	1.66	2.70	2.80	2.77			
Diamond	1.67	1.69	2.38	2.33	2.70	1.96	2.63
East Leonard	1.35	2.78	2.56	4.00	3.70	2.18	2.78
Evangeline .....	.41		1.85		3.12	3.45	3.85
Finney							
Fountain	3.45	2.17	2.56	4.16			
Franklin	1.25	2.58	2.30	2.94	2.77	2.22	2.63
Hall	1.43	2.00	2.38	2.22	2.56	1.92	2.44
Henry	2.22	2.50	2.38	2.86			
Ionia	1.82	2.33					
Jefferson	1.75	2.08	1.92	1.79	3.03	1.82	
Lafayette	1.58	2.27	2.43	3.33	3.84	2.85	1.75
Lexington	1.78	2.64	2.09	2.68	3.21	3.49	3.37
Madison	2.22	2.77	2.43	2.77	2.85		
Michigan	1.96	2.63	2.44	2.13	2.70		
North Division	1.89	1.79	2.13				
Oakdale .....	.76	1.28	1.87	1.92	2.13		
Palmer	1.49	2.00	2.33	3.12	2.77	2.85	2.85
		2.63					
Pine	1.20	1.87	2.15	2.86	2.22	2.63	
Plainfield	1.56	2.38	2.04	2.08	2.22	1.39	
Sheldon	1.35	1.82	2.17	2.56	2.17		
Sibley	1.32	2.33	2.33	2.86	2.86		
Sigsbee	1.59	2.44	1.85	2.56	3.33	2.94	3.03
South Division	1.35	1.52	2.04	2.63	2.94	2.78	2.04
Stocking	1.60	2.17	1.79				
Straight	1.88	2.63	1.85	2.37	3.57	2.85	
					2.27		
Turner	1.67	2.78	2.04	2.63	2.86	2.86	
Walker	1.16						
West Leonard	1.61	1.61	2.50				
Widdicomb	1.92	1.92	2.78	2.50	3.70		
Median	1.59	2.17	2.28	2.63	2.86	2.78	2.74
Average (All Cases).....	1.58	2.20	2.30	2.63	2.85	2.72	2.78

The numbers at the left of the diagram indicate the number of words read per second in the easy selection. The numbers on the line between the third and fourth grades indicate the equivalent number of words read per second when the second more difficult passage was used, and the numbers on the line between the sixth and seventh grades indicate the equivalent rates for the most difficult selection.

The diagram shows that the rate at which the pupils of Grand Rapids read silently is very similar to the rate at which the pupils of thirteen cities read, but is somewhat lower than the average Cleveland rate. Inasmuch as the record for Grand Rapids compares so favorably with the record for thirteen cities, it would seem that this phase of reading achievement has been fairly well provided for in the instruction which Grand Rapids

DIAGRAM XXI—Average Rates in Silent Reading among 3399 pupils in Grand Rapids, among 1831 pupils in Cleveland and among 2654 pupils in thirteen other cities.

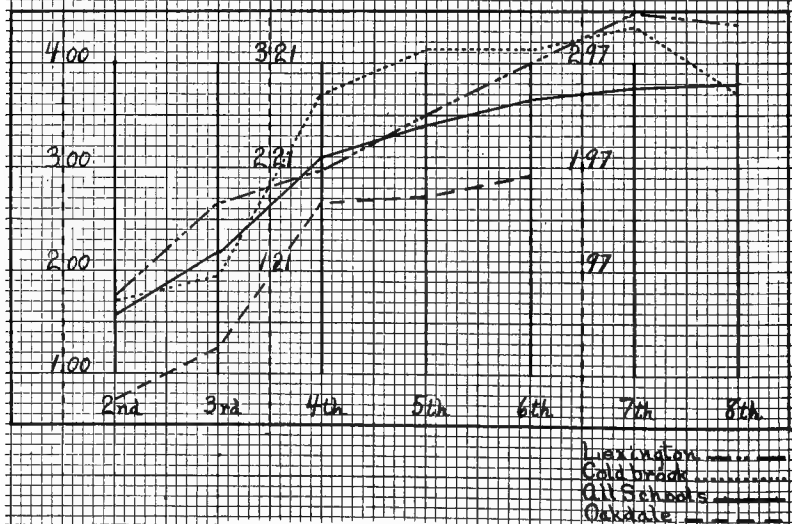
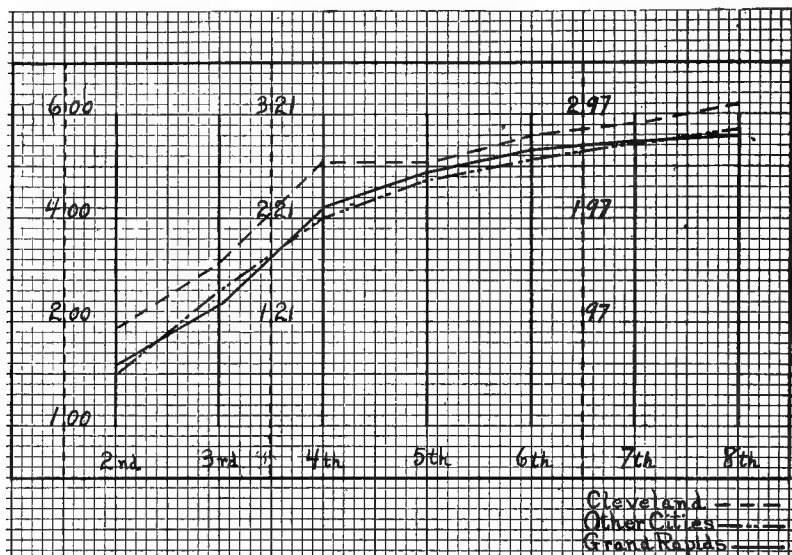


DIAGRAM XXII—Average Rates in Silent Reading in each grade in all schools and in each grade in three selected schools.

gives to its pupils. On the other hand, very little attention has been given in classroom instruction to the problem of rate in silent reading. As better methods are worked out for securing more effective results in this phase of reading achievement, it may be found that our standards are far too low at present. The fact that Cleveland secured results which are distinctly superior to the scores for Grand Rapids leads to the conclusion that Grand Rapids should by no means feel self-satisfied with its average results.

Diagram XXII presents some of the variations which are found in particular schools in Grand Rapids. Oakdale School ranks very low in rate of silent reading. Coldbrook School and Lexington School, on the other hand, although making records which are slightly below the average in certain grades, make records which are distinctly above the average in most grades. A careful study of Diagram XXII and of Table XVII shows that there are a number of schools which should give considerable attention to the problem of rate in silent reading. In some schools this need is apparent throughout the grades; in other schools this need is most apparent in connection with certain grades. The fact that some schools attain very high rates throughout the grades indicates the possibility that the general average for the city as a whole might be made much higher if the proper amount of attention were directed to this problem.

Quality of Silent Reading

The scores for quality of silent reading are based on the ability of the pupil to reproduce what was read and to answer questions concerning the subject-matter of the test. The average quality score for each class tested is given in Table XVIII. The median and average scores for each grade appear at the foot of the table. The average scores for all the pupils of each grade have been adopted for use in making comparisons.

The average quality scores for Grand Rapids, Cleveland, and thirteen other cities are compared in Diagram XXIII. The same readjustments appear in this diagram which were described in connection with the diagrams for rate of silent reading. The diagram shows that above the third grade the records made by the pupils in Grand Rapids follow closely and are slightly above the records made by Cleveland pupils. On the other hand, the records for Grand Rapids are distinctly lower than the records made by thirteen other cities with the exception of the seventh grade records. The unusually high scores made by the pupils of the second and third grades can be easily accounted for as

TABLE XVIII

AVERAGE QUALITY SCORE IN SILENT READING FOR 37
SCHOOLS IN GRAND RAPIDS

SCHOOLS	Second Grade	Third Grade	Fourth Grade	Fifth Grade	Sixth Grade	Seventh Grade	Eighth Grade
Union .....	....	....	....	....	28	24	26
South .....	....	....	....	....	....	20	25
Junior	17	40	15	33	31	28	27
Alexander	28	40	15	17	35	26	....
Buchanan	28	40	17	31	26	22	....
Coit	41	43	12	24	....	....	....
Coldbrook	31	40	17	25	28	19	26
Congress	33	39	32	24	....	....	....
Diamond	23	31	19	25	31	19	24
East Leonard	36	50	28	27	22	32	34
Evangeline	25	....	27	....	28	29	32
Finney .....	....	....	....	....	....	....	....
Fountain	32	49	34	44	....	....	....
Franklin	31	43	15	25	35	24	42
Hall	35	49	26	36	35	28	23
Henry	39	44	18	24	....	....	....
Ionia	27	48	....	....	....	....	....
Jefferson	28	36	14	20	29	20	....
Lafayette	39	43	20	33	30	33	46
Lexington	47	49	24	32	31	20	23
Madison	35	43	26	30	39	....	....
Michigan	35	41	33	24	28	....	....
North Division	33	35	15	....	....	....	....
Oakdale	34	39	18	17	26	....	....
Palmer	32	44	16	21	26	18	26
Pine	34	41	15	27	30	31	....
Plainfield	39	39	23	29	36	34	....
Sheldon	24	41	17	30	34	....	....
Sibley	33	36	15	25	23	....	....
Sigsbee	47	55	21	33	41	21	22
South Division	28	34	21	37	31	19	24
Stocking	23	30	13	....	....	....	....
Straight	34	29	12	20	23	21	....
Turner	40	36	17	24	36	25	....
Walker	56	....	....	....	....	....	....
West Leonard	35	34	13	....	....	....	....
Widdicomb	45	42	8	21	34	....	....
Median	33	40	17	25	30	24	26
Average (All Cases).....	32	40	19	25	31	24	27

follows. The teachers giving the tests wrote the reproduction and answers to questions for the pupils of the second and third grades. The pupils in grades above the third wrote their own reproductions. The written reproductions received from a number of second and third-grade classes show clearly the influence of the teacher who gave the test. The English in these reproductions is superior to the English used by pupils of these grades. The thought is reproduced more fully than has been found to be the case with most pupils of these grades. The questions are answered with a degree of precision which excels the written work of pupils in more advanced grades. It is to be regretted that this error has crept into the results as it makes any comparison among second and third-grade classes invalid. It should be added, however, that many of the second and third

DIAGRAM XXIII—Average quality scores among 3399 pupils in Grand Rapids, among 1831 pupils in Cleveland and among 2654 pupils in thirteen other cities.

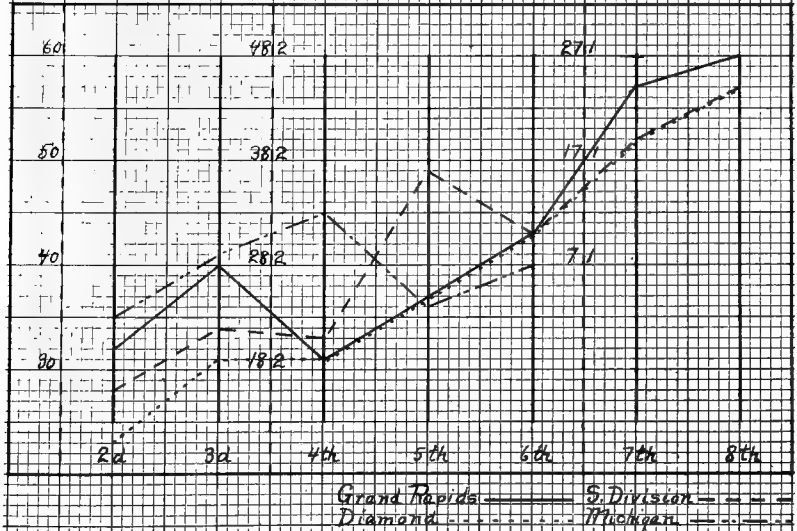
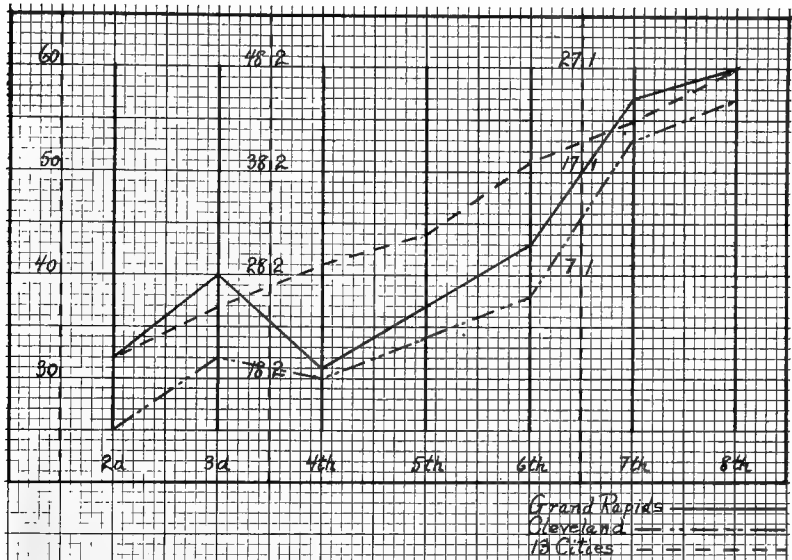


DIAGRAM XXIV—Average quality scores in silent reading in each grade in all schools and in each grade in three selected schools.

grade reproductions were copied with a high degree of accuracy as shown by the fact that the sentences copied were characteristic of pupils of these grades.

A careful study of the quality scores for Grand Rapids reveals the fact that the record for the city as a whole is not only relatively low, but that the growth in individual schools is erratic and fails to show steady progress. In Diagram XXIV an unusual drop between the fourth and fifth grades is represented in the curve for Michigan School. A similar drop is represented between the fifth and sixth grades in the curve for South Division School. When one contrasts such progress with the steady growth revealed by the record for Diamond School, one is forced to question the consistency of the instruction which these pupils receive from grade to grade. In Diagram XXV, fairly constant progress in the fourth, fifth, and sixth grades is shown in the records for Turner, Sigsbee, and Straight Schools. In Diagram XXVI, on the other hand, an entirely different type of progress is shown for these same grades. Such records indicate that there is urgent need that the problem of securing effective results in the silent interpretation of printed material be given immediate attention.

The conclusions which have been reached as a result of the objective study of silent reading achievement may be summarized as follows. The progress in rate of silent reading for the city as a whole is to be compared favorably with that shown in other cities. In individual schools and classes there is need for greater emphasis and more consistent effort on this phase of silent reading. In general, there is a possibility of improvement in rate of silent reading which has not been fully realized anywhere. The record in quality of silent reading is relatively low for the city as a whole, particularly in the fourth, fifth, and sixth grades. The erratic character of the progress throughout these grades indicates that the methods of securing results in this phase of reading achievement are less well worked out than is true in the case of oral reading achievement or rate of silent reading. When one compares the very satisfactory results secured in oral reading with the inferior and erratic results secured in silent reading, it stands out with perfect clearness that there is need of changing the relative emphasis given to oral reading and to silent reading by the teachers of Grand Rapids.

Interpretation

The distinction between oral reading and silent reading has purposely received considerable emphasis in this report. Although this distinction has not been kept prominently before

DIAGRAM XXV—Average Quality Scores in Silent Reading in each grade in four selected schools.

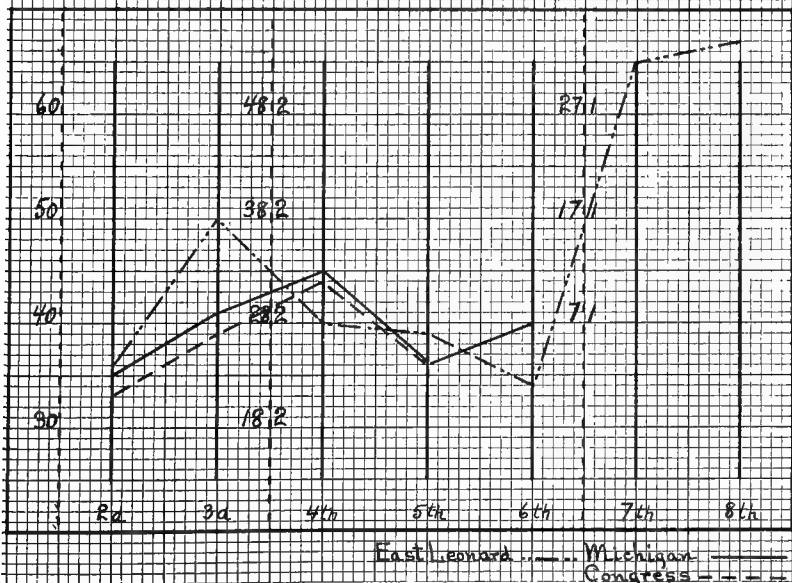
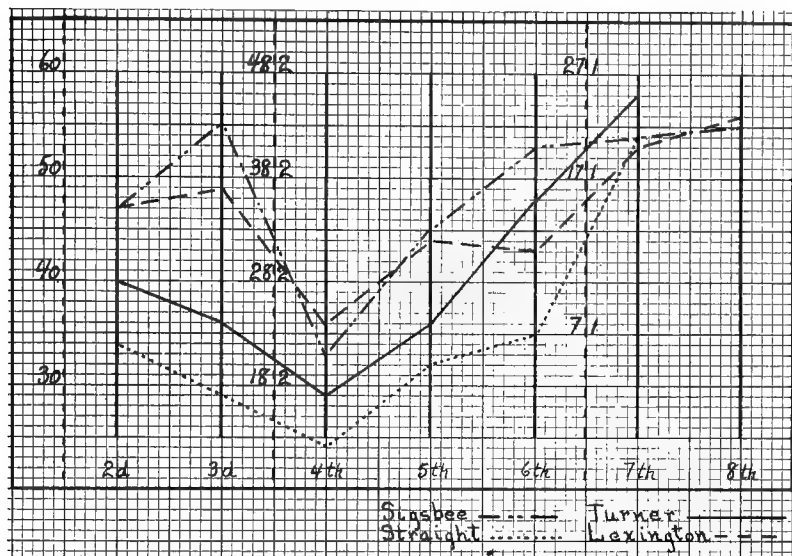


DIAGRAM XXVI—Average Quality Scores in Silent Reading in each grade in three selected schools.

the minds of teachers in the past, the increasing recognition of the value of silent reading makes it necessary that teachers give this problem constant consideration. It was shown in the earlier part of this report that Grand Rapids secures effective results in teaching oral reading. The fact that silent reading habits are less effectively established leads to the conclusion that a portion of the time and effort now given to oral reading should be directed to silent reading. In order to determine at just what points in the grades this change of emphasis should take place, it is necessary to bear in mind certain well-established facts.

When second and third-grade pupils have acquired as much mastery of the mechanics of reading as have the pupils of Grand Rapids, they are able to pronounce words which are quite beyond their comprehension. Whenever pupils have reached this stage in their development, additional mastery of word pronunciation is less important than increased mastery of meanings. These meanings are best secured by coming in contact with words and sentences time after time, until a body of meaning is built up in regard to these words. The large amount of attention which the teachers of many second and third-grade classes of Grand Rapids give to quantitative reading with emphasis upon the thought side, is a long step in the right direction.

Furthermore, a pupil in the first grade is able to pronounce words more rapidly than he is able to recognize them, but during the second and third-grade his rate of word recognition reaches or surpasses his rate of word pronunciation. By the time the pupil reaches the fourth grade he has mastered the art of oral reading well enough to use it intelligently. The result is that he begins to read much more rapidly than during the primary grades. He becomes interested in the subject-matter and because his vocal chords react slowly, he lets his eyes run along the lines without supervising the vocal chord reactions fully. Speed in recognition of words at this time becomes an enemy of excellence in oral reading. These facts justify the contention that it would be more in harmony with the child's needs to lay less emphasis on oral reading during the intermediate grades and, on the other hand, to give greater opportunity for the development of effective habits of silent reading.

Again, the curve of progress in rate of silent reading for the pupils of Grand Rapids shows that the most rapid progress is made by the pupils of the second, third, and fourth grades. By the time pupils reach the sixth grade their habits of careful silent reading have been well established. It will be noted that under our present system of instruction little progress or advance is made beyond this grade in rate of silent reading. As Diagram XXIII shows, this was true not only in the case of Grand Rapids

but in the case of Cleveland and the other cities which were represented in Diagram XXIII. As pointed out above, this is a general defect in all elementary-school teaching. Silent reading can develop much beyond the point shown in these diagrams. It would be a great advantage to all pupils if they could attain the highest possible fluency in silent reading. Schools should take an entirely new attitude in regard to these various phases of reading achievement.

Furthermore, during the third and fourth grades, when pupils are just beginning to develop the power of rapid and intelligent silent reading, they also become interested in reading to find out facts. Reading for information, therefore, should constitute the essential purpose of reading exercises. The reading committee of Grand Rapids has made provision in its course of study for this type of reading. The course of study says at the beginning of the fourth grade "This is chiefly silent reading to get information for the work in history, geography, natural science, and physiology. The recitation or class discussion becomes the test of the pupil's ability to get thought from the printed page. It is of great importance that boys and girls acquire this ability and until they can do silent reading intelligently, it is advisable to use class time in which the work may go on under the teacher's help and guidance." As one visits the schools, he finds that the spirit of these directions has not been carried out in practice to any great extent.

The facts presented in the preceding paragraphs should justify the conclusion that the pupils of Grand Rapids may very well begin to devote considerable attention to silent reading in the third grade. During two or three periods a week, silent study might well be substituted for sight reading. The pupils should read with a definite purpose or problem in mind and the reading should be followed by a brief, lively discussion to enable the teacher to determine the extent to which the class as a whole appreciated the thought of the selection and to determine the extent to which individual help on the part of certain members of the class is needed. Frequently, pupils should be given a relatively easy selection and should be urged to proceed rapidly with their reading. By all means pupils should never be told to pronounce the words to themselves while reading silently. That principal of Grand Rapids who urges the pupils under her supervision to read so that she can see their lips move, and who encourages this habit throughout the grades, is developing habits on the part of pupils which will defeat the attempt to develop effective silent readers.

In endeavoring to secure speed and quality in silent read-

ing, the teacher should adapt her method to the selection in hand or should choose selections which are adapted to a given purpose. Many selections may be read quickly for the story. Several pages of *Black Beauty* may be read rapidly to find out the number of things that Black Beauty had to become accustomed to in order to become a well-trained horse. Speed can be encouraged in such an exercise by limiting the amount of time given to the reading. On the other hand, many selections should be read with more care in order to determine what the essential points are in the selection, or to weigh the relative importance of the facts, or to associate the facts of the selection with things which the child already knows. It is the phase of reading just described of which the pupils of Grand Rapids stand most clearly in need. Throughout the intermediate grades selection after selection should be assigned and the pupil trained to read that selection silently under the guidance of specific purposes. Such a lesson cannot be conducted without careful thought and preparation. At frequent intervals careful tests of speed and quality of silent reading should be made in order to determine the most urgent need of the pupils. The results of these tests should direct the teacher in her choice of further assignments.

Wider training in habits of effective silent reading is recommended for the pupils of the seventh and eighth grades as well as for the pupils of the intermediate grades. Part of the time now given to oral reading should be utilized in teaching pupils how to read more effectively. The criticism now often made by high-school teachers that the elementary school fails to teach its pupils to read effectively is doubtless justified in large measure so far as the power of silent reading and interpretation are concerned. Evidence of this fact is found in the wide variation which prevails in the achievement of eighth-grade pupils. The teachers of reading in the upper grades should see to it that the boys and girls who go from the elementary school, either into the high school or out into the practical world of affairs, have been trained in the art of silent, individual mastery of the printed page. Less emphasis on formal oral reading in the intermediate and upper grades and more emphasis upon effective habits of silent reading is the outstanding recommendation which issues from this study of the instructional needs in reading of the pupils of Grand Rapids.

CHAPTER V

COMPOSITION

Matthew H. Willing

The achievement of the elementary-school pupils of Grand Rapids in written English composition was investigated by means of the following test: The pupils in grades 4-2, 5-2, 6-2, 7-2, and 8-2 were asked to write original stories on the subject, "An Exciting Experience." They were directed to write about something that had happened to them or to people whom they knew. They were warned against reproducing stories they had read or had seen at moving picture shows. The following suggestions were written on the board to help them in making selections: A Storm, A Runaway, An Errand at Night, A Wonderful Journey, In the Woods, On the Water, On the Ice, On the Mountains, An Unexpected Meeting. They were not required to use any of these, if they preferred others. The whole aim in devising and giving the test was to secure as natural an expression as possible on subjects of personal interest to the children. The requirement that they use this kind of a subject insured a certain uniformity which made it easier to evaluate results.

The test period covered thirty minutes—five for preliminary explanation and suggestion, twenty for uninterrupted writing, and five for concluding, making corrections and counting the words written. In seventeen representative schools the tests were administered by the writer, while in the other buildings the principals managed the work. A conference was held with the principals before the beginning of the tests relative to their purpose and method. The interpretation of results here made is on the basis of the seventeen schools, though the data from the others are also set forth in a concluding table.

These seventeen schools provided a total of 2075 papers, divided as follows among the four grades: 4-2, 456; 5-2, 445; 6-2, 490; 7-2, 367; 8-2, 317.

For the purpose of grading, a random selection of ten papers

was made from each grade in each school with the exception of three unusually large classes from which a third of the papers was drawn. The selection in each case was ample to afford a correct representation of the whole group, since the ten papers rarely constituted less than a third of the whole number. The papers thus selected numbered 805, divided as follows: 4-2, 170; 5-2, 175; 6-2, 180; 7-2, 165; 8-2, 115.

These 805 papers were graded by the use of a composition scale derived from the material of an exactly similar test given in Denver, Colo., the preceding December. This scale consists of eight samples ranging by approximately equal steps from poorest to best, and covering the range of accomplishment of pupils in grades 4 to 8 inclusive. It is reproduced immediately below.

Composition Scale

A-90

The most exciting experience of my life happened when I was but five years of age. I was riding my tricycle on the top of our high terrace. Beside the curbing below, stood a vegetable wagon and a horse. Suddenly I got too near the top of the terrace. The front wheel of my tricycle slipped over and down I went, lickety-split, under the horse standing by the curbing. I had quite a high tricycle and the handle-bars scraped the horse's stomach, making him kick and plunge in a very alarming manner. I was directly under him during this, but finally I rolled over out of his way and scrambled up. I looked at my hands! Most of the first finger and part of the thumb of my left hand were missing. The horse had stepped on them. I had endured no sensation of pain before this, but now my mangled hand began to hurt terribly. I was hurried to the hospital and operated on, and now you would hardly notice one of my fingers is missing. I certainly have good cause to congratulate myself on my good fortune in escaping with as little injury to myself as I did, for I might have been terribly mangled in my head or body.

No. of mistakes in spelling, punctuation and syntax per hundred words—0.

B-80

Near our ranch in Fort Logan there was a chicken ranch. On day my sister and I went up to the chicken ranch on our horses. Coming back there was a road leading from our house to the main road and along this road were half rotted stumps. On every one of these stumps what do you think we saw. We saw snakes! snakes! snakes! I suppose these snakes were shedding their skins they were of every color, shape and size. But when sister and I saw these snakes we whipped our horses into a gallop and away we went just as hard as we could go. When we got to the house we went in and mamma couldn't get us out the house that day. I was so scared that I believe I dreamed about snakes for a month.

Number of mistakes in spelling, punctuation and syntax per hundred words—5.

C-70

When I was in Michigan I had an exciting thing happen or rather

saw it, it was when the big steamship plying between Chicago and Muskegon was sunk about 7 o'clock in the evening. It caught on fire with a load of cattle and products for the market on board, one of the lifeboats carrying some of the few people who were on board landed at our pier. The "whaleback", steamer which goes between Chicago and Muskegon was two hours later in coming than the freighter and was stopped to clear up the wreckage. all of the cattle and products and an immense cargo of coal were lost, but there were only two people lost. the ship tried hard to get to port with her cargoe but, could not reach it. The next morning we found planks, and parts of the wreck on the beach. Our cottage was at the top of a cliff and it was just one hundred feet to the lake from our cottage, we had a beautiful view, and the sight of the fire on the horizon was a beautiful sight (though it was pitiful.).

Number of mistakes in spelling, punctuation and syntax per hundred words—8.

D-60

One time when mother, some girl friends and myself were staying in the mountains. An awful storm came up. At the we were way up the mountain. The lighting flashed and the thunder roared. We were very frightened for the cabin we were staying at was at the foot of the mountain. We didn't have our coats with us for it was very warm when we started. There were a few pine trees near us so we ran under them. They didn't do much for good for the rain came down in torrents. The rain came down so hard that it uprooted one of the trees. Finely it began to slack a little, So we thought we would try and go back. About half was down the mountain was a little hut. We started and when got about halfway down it began to rain all the harder. We didn't know what to do for this time there wasn't any trees to get under. We decided to go on for the nearest shelter was the hut. Finely we got there cold and wet to the skin.

Number of mistakes in spelling, punctuation and syntax per hundred words—11.

E-50

One time mother and father were going to take sister and I for a long ride thanksgiving. We had to go 60 miles to get there, When sister and I herd about it we were very glad. It was a very cold trip. We four all went in a one-seated automobile. Dady drove and mother held me and sister sat on the top the top was down. Mother could not hold sister for she was two heavy. When we got there they had a hot fire ready for us and a goose dinner. We were there over night. In the morning it was hot out. This was on a farm. Sister and I got to go horse-back riding. It was lots of fune. They had children. The children were very nice. Our trip home was very cold. When we got home it had snod.

Number of mistakes in spelling, punctuation and syntax per hundred words—14.

F-40

My antie had her barn trown down last week and had all her chickens killed from the storm. Witch happened at twelve oclock at night. She had 30 chickens and one horse the horse was saved he ran over to our house and claped on the door whit his foot. When we saw him my father took him in barn where he slepped the night with our horse. When our antie told us about the accident we were very sorry the next night all my anties things were frozen. The storm blew

terrible the next morning and I could not go to school so I had to stay home the whole week.

Number of mistakes in spelling, punctuation and syntax per hundred words—17.

G-30

The other day when I was rideing on our horse the engien was comeing and he got frightened so he through me down and I broke my hand.

And the next thing I done was I went to the docter and he put some bandage on it and he told me to come the next day so I came the next day and he toke the bandage off and he looked at it and then it was better.

Mistakes in spelling, punctuation and syntax per hundred words—23.

H-20

Deron the summer I got kicked and sprain my arm. And I was in bed of wweeks And it happing up to Washtion Park I was going to catch some fish. And I was so happy when I got the banged of I will nevery try that stunt againg.

Number of mistakes in spelling, punctuation and syntax per hundred words—30.

The papers from the seventeen Grand Rapids schools were graded by the writer subsequent to his use of the scale in grading the papers of the Denver test mentioned above.

The following table gives the distribution of marks by grades. The first or left half of the table gives grades that are subdivided more minutely than the scale itself. Thus when a composition is between B and C in the scale, it is graded 75. In the right half of the table the grades are reduced to correspondence with the scale.

From the table and diagrams it will be seen that the pupils in 4-2 and 5-2 grades are nearer together in their ability in this test than are pupils of the higher grades. A mathematical index of this homogeneity is the quartile deviation (Q) given in the above table for each grade. This quartile deviation represents half the distance on the scale between the mid-points of the upper and lower halves of a distribution. In the diagrams it is one-half the distance between the two outer broken lines running through vertically. The nearer these two lines are together, the smaller the quartile deviation and the greater the homogeneity of the group in question. The quartile deviations from the five grades as given in the table are:

Grade	4-2	5-2	6-2	7-2	8-2
Q.	6.1	6.2	6.8	7.8	8

This is as much as to say, that the longer pupils remain in school, the farther apart they grow within their respective grades in the particular abilitv here tested. Or, to put it another way,

TABLE XIX
Distribution of Merit Scores in 17 of the Grand Rapids Schools.

Scale	4-2	5-2	6-2	7-2	8-2	Totals	Scale	4-2	5-2	6-2	7-2	8-2	Totals
90						3	90			1	1	6	8
85			1	3		6							
80			1	10		11	80			3	18	19	40
75			4	12		11							
70	1	1	9	23		21	70						
65		3	13	21		15		1	4	17	40	35	97
60		3	34	38		23							
55		7	36	24		14	60	6	31	59	60	37	193
50		26	38	26		19	50	47	78	72	40	17	254
45		34	43	31	1	1	40	75	51	28	6	1	161
40		48	24	4			30	33	9				42
35		19	11	1									
30		22	3	2		6	20	8	2				10
25		4		1		7	Totals	170	175	180	165	115	805
20		6					Med's	40.8	48.2	55.0	61.8	65.7	52.4
							Q.						
							Dev.	6.1	6.2	6.8	7.8	8.0	8.9

The data of this table are illustrated in the following diagrams.

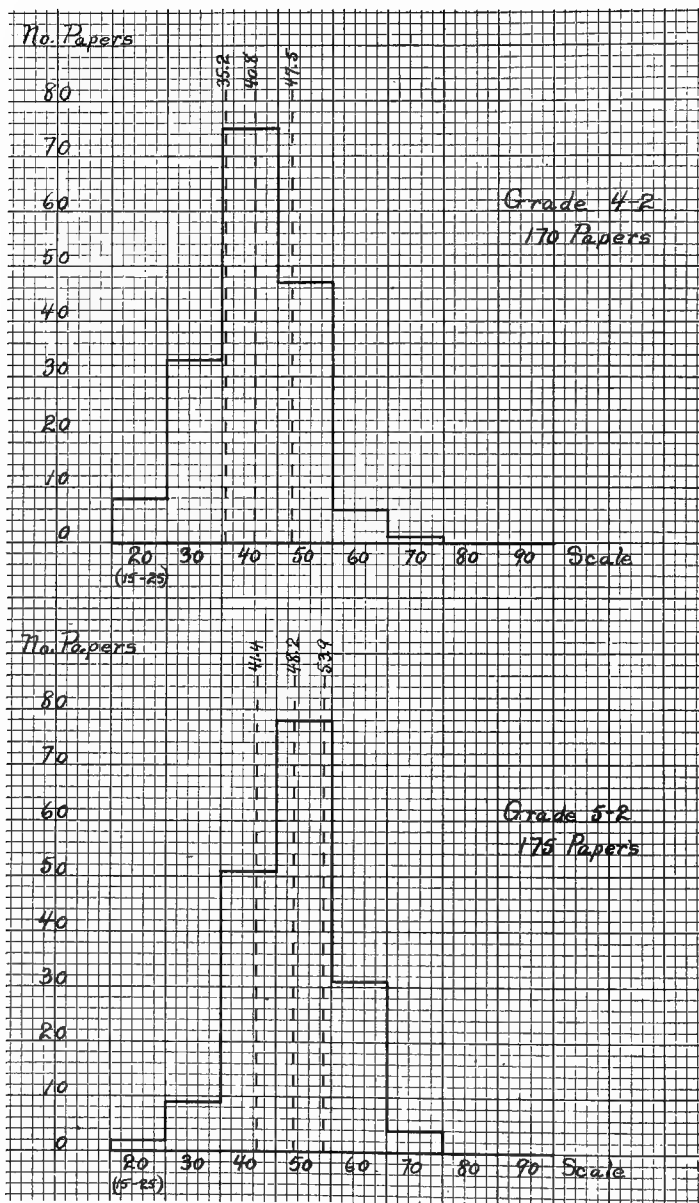


DIAGRAM XXVII—Distribution of merit scores in composition in grades 4-2 and 5-2 of 17 Grand Rapids schools.

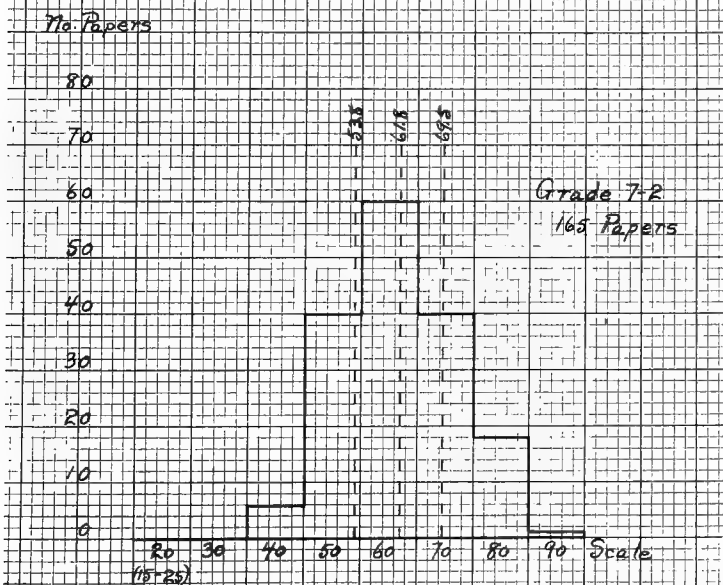
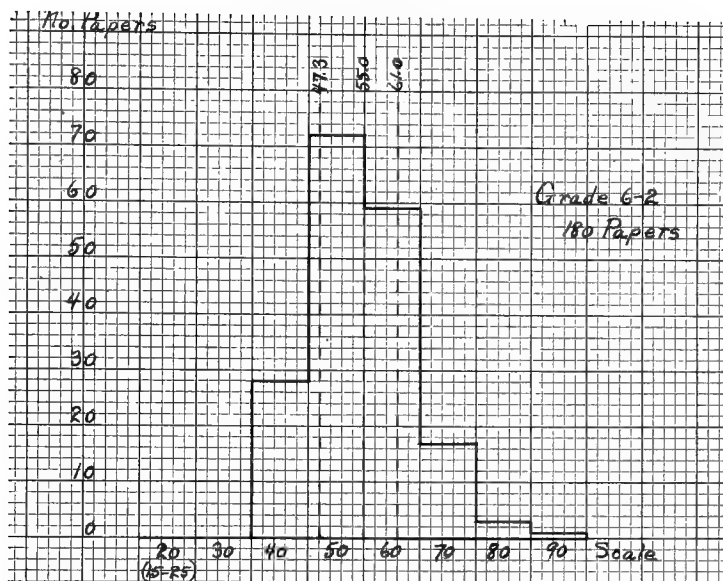


DIAGRAM XXVIII—Distribution of merit scores in composition in grades 6-2 and 7-2 of 17 Grand Rapids schools.

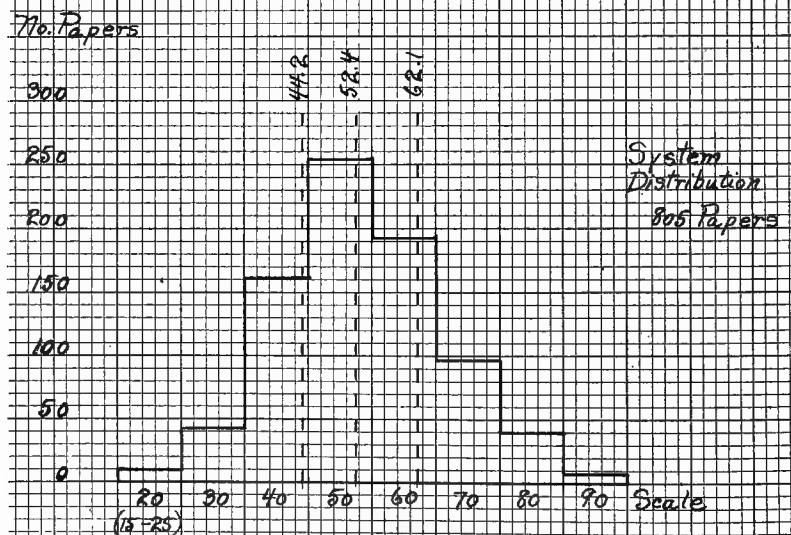
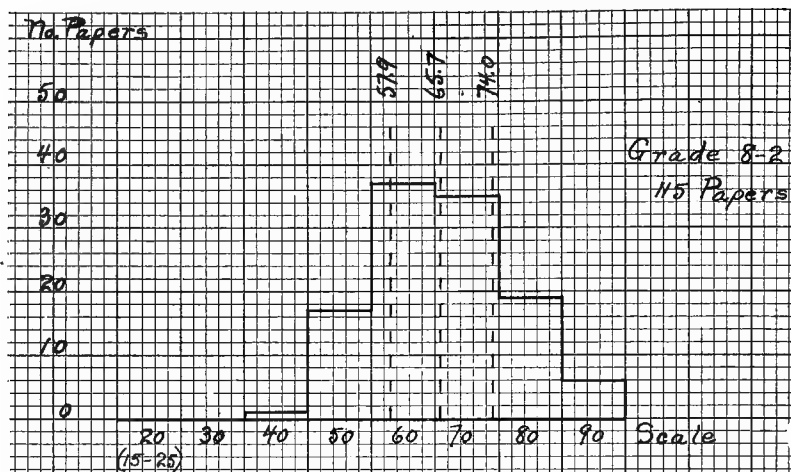


DIAGRAM XXIX—Distribution of merit scores in composition in the 8-2 grades and in all grades of 17 Grand Rapids schools.

grade standards in written composition, if there are any, become less and less defined as one approaches high school.

One other significant point indicated by the above table and diagrams is the great amount of overlapping in ability from grade to grade. The upper quartile (mid-point of upper half) of one grade is almost the median (mid-point) of the next higher. That is, the upper quarter of any grade is better than the lower half of the succeeding grade, or the lower quarter of the second grade following. This overlapping is much more exaggerated in the case of the 7-2 and 8-2 grades. There is, in fact, little difference between the two. A more concrete illustration of what is here meant is afforded by noting the percentage of pupils in each grade making a given score, say 50.

Grade	4-2	5-2	6-2	7-2	8-2
Per cent marked 50	28%	45%	40%	24%	15%

All this simply means that grade lines do not indicate very much so far as accomplishment in written composition is concerned—at least when general merit is under consideration.

The following table gives the quantity medians (words written), the merit medians and the quartile deviations in merit for each grade in each of the seventeen schools.

The merit curves of these schools in comparison with that of the group are shown in Diagrams XXX and XXXI.

The merit curve of the group, or of the system as we may call it, shows a consistent rise from 4-2 to 7-2 but a distinct slowing up in 8-2. The successive gains, 4-2 to 5-2, 5-2 to 6-2, etc., are 6.1, 5.7, 8.5 and 3.5. The greatest gain over a preceding grade is made by the 7-2 grade, while the lowest gain comes in the 8-2 grade. The individual schools, as may be seen in the diagrams, follow this same curve more or less closely. The 8-2 grade almost universally shows little or no improvement over the 7-2; while the 7-2 is almost always much above the 6-2. On the basis of this investigation it is not possible to tell why these peculiarities exist. They present problems for local supervisory study.

It is interesting in this connection to note that the merit curve for Denver runs very closely parallel to this of Grand Rapids. (Diagram XXXII.)

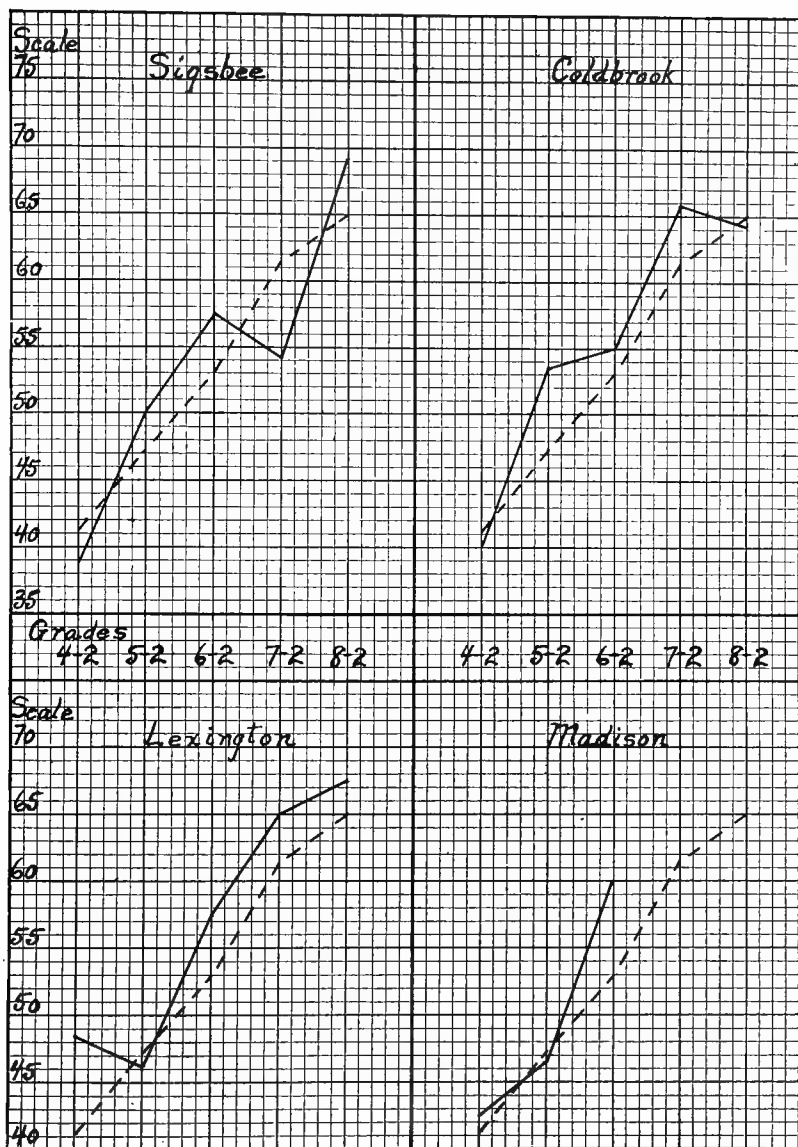
The quantity curves for the two systems are compared in Diagram XXXIII.

TABLE XX

Quantity and merit medians and the quartile deviations in merit for each grade of 17 Grand Rapids Schools.

	4-2 GRADE			5-2 GRADE			6-2 GRADE			7-2 GRADE			8-2 GRADE			SCHOOL AVERAGES		
	Quan. Med's	Merit Q	Merit Med's	Quan. Med's	Merit Med's	Merit Q	Quan. Med's	Merit Med's	Merit Q	Quan. Med's	Merit Med's	Merit Q	Quan. Med's	Merit Med's	Merit Q	Quan. Med's	Merit Med's	Merit Q
Buchanan	95	32.5	7.1	120	40.8	5.0	146	49.1	6.9	150	51.2	6.6	.....	.....	.....	128	43.4	6.4
Coldbrook	123	40.0	8.5	145	53.5	4.9	203	55.0	7.5	195	65.8	6.7	245	64.1	7.2	182	55.7	7.0
Diamond	140	44.5	2.9	140	45.9	4.4	235	50.0	7.3	243	55.8	4.4	198	65.0	7.5	191	52.2	5.3
East Leonard	95	37.5	6.1	185	42.5	5.9	145	45.0	4.7	213	55.9	4.4	210	72.5	9.0	170	50.7	6.0
Franklin	127	40.5	3.5	200	46.2	3.4	175	50.0	6.7	145	65.0	7.5	190	75.0	9.9	167	55.5	6.2
Hall	107	40.8	5.6	130	45.8	7.5	172	55.8	5.6	165	65.0	5.8	240	60.0	8.8	163	53.5	6.6
Jefferson	135	40.8	5.0	127	50.0	6.1	165	57.5	4.7	195	61.2	4.1	.....	.....	.....	155	52.4	5.0
Lafayette	150	46.5	3.0	180	49.1	6.9	267	57.5	5.2	263	60.8	10.0	.....	.....	.....	215	53.5	6.3
Lexington	155	48.6	4.3	145	46.2	4.3	193	57.5	7.5	220	65.0	9.2	240	67.5	5.4	191	57.0	6.1
Madison	160	42.5	5.7	137	46.5	5.2	170	60.0	5.0	.....	.....	.....	.....	.....	.....	156	49.6	5.3
Palmer	145	42.5	4.7	175	50.5	2.0	200	47.5	6.9	145	58.7	3.8	225	62.5	9.4	178	52.4	5.4
Plainfield	220	42.5	4.5	175	52.5	4.2	180	55.0	3.8	280	65.5	2.7	.....	.....	.....	214	53.9	3.8
Sigsbee	113	38.7	5.9	160	50.0	4.8	148	57.5	3.6	180	54.1	10.6	260	69.1	7.6	172	53.9	6.5
South Division	92	40.0	2.1	125	50.8	1.8	150	52.5	3.6	235	65.0	8.3	170	59.1	7.5	174	53.5	4.8
Straight	100	35.0	10.0	115	47.5	7.5	157	46.5	5.5	225	55.8	4.8	.....	.....	.....	149	46.2	6.7
Union	127	34.1	4.6	125	41.2	4.1	130	49.1	5.0	206	64.0	8.6	200	63.3	7.8	178	50.4	6.0
Widdicomb	133	40.8	5.0	120	45.0	3.6	173	50.0	4.2	.....	.....	.....	.....	.....	.....	175	45.3	4.3
SYSTEM	128	41.2	5.3	145	47.3	4.8	174	53.0	5.5	205	61.5	6.3	220	65.0	7.8	.....	.....	.....

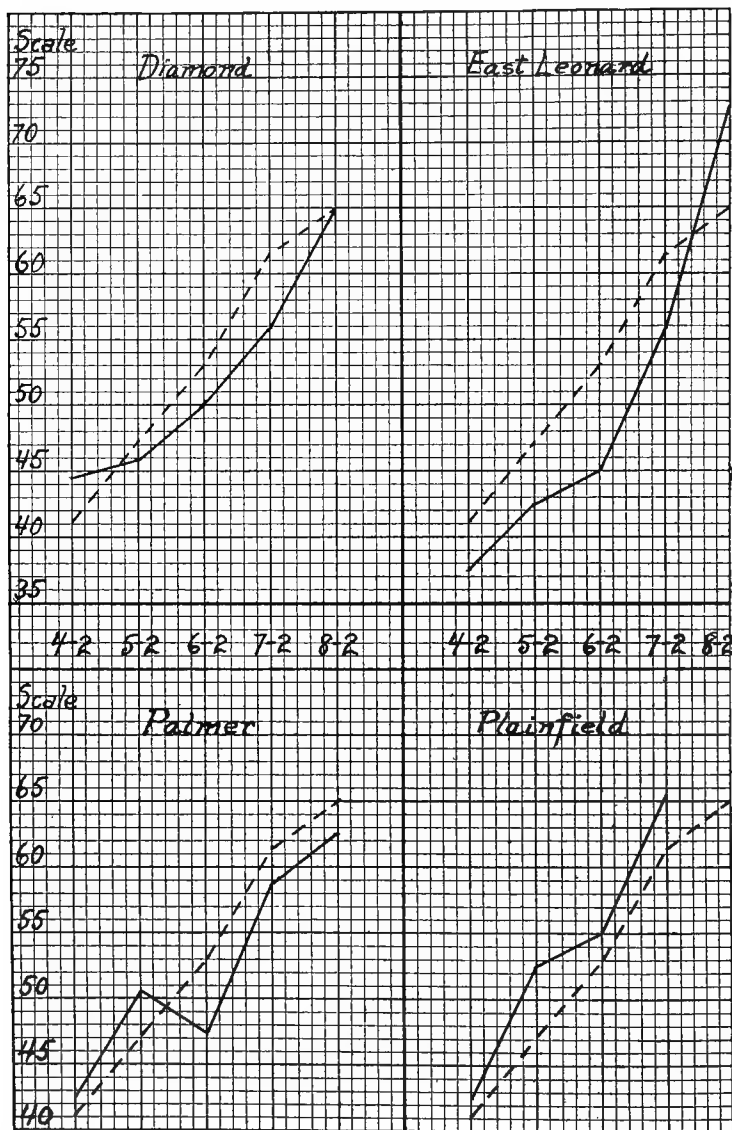
The first column under each grade gives the medians of the numbers of words written; the second column the merit medians; and the third column, the quartile deviations of the merit distributions.



School Median —————

System Median - - - - -

DIAGRAM XXX (A)—Comparison of merit curve in composition of 17 Schools of Grand Rapids with the curves of Individual Schools.



System Median — — — — —

School Median —————

DIAGRAM XXX (B)—Comparison of merit curve in composition of 17 Schools of Grand Rapids with the curves of Individual Schools.

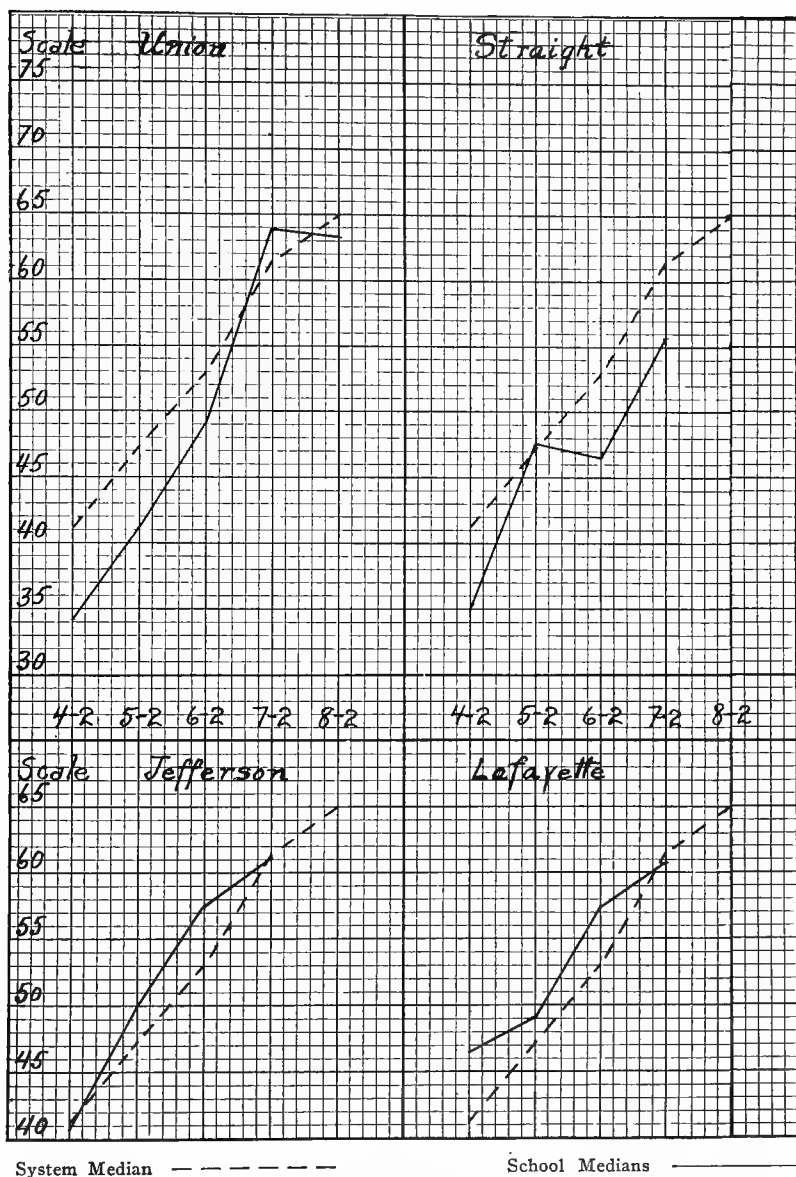


DIAGRAM XXXI (A)—Comparison of merit curve in composition of 17 schools of Grand Rapids with the curves of individual schools.

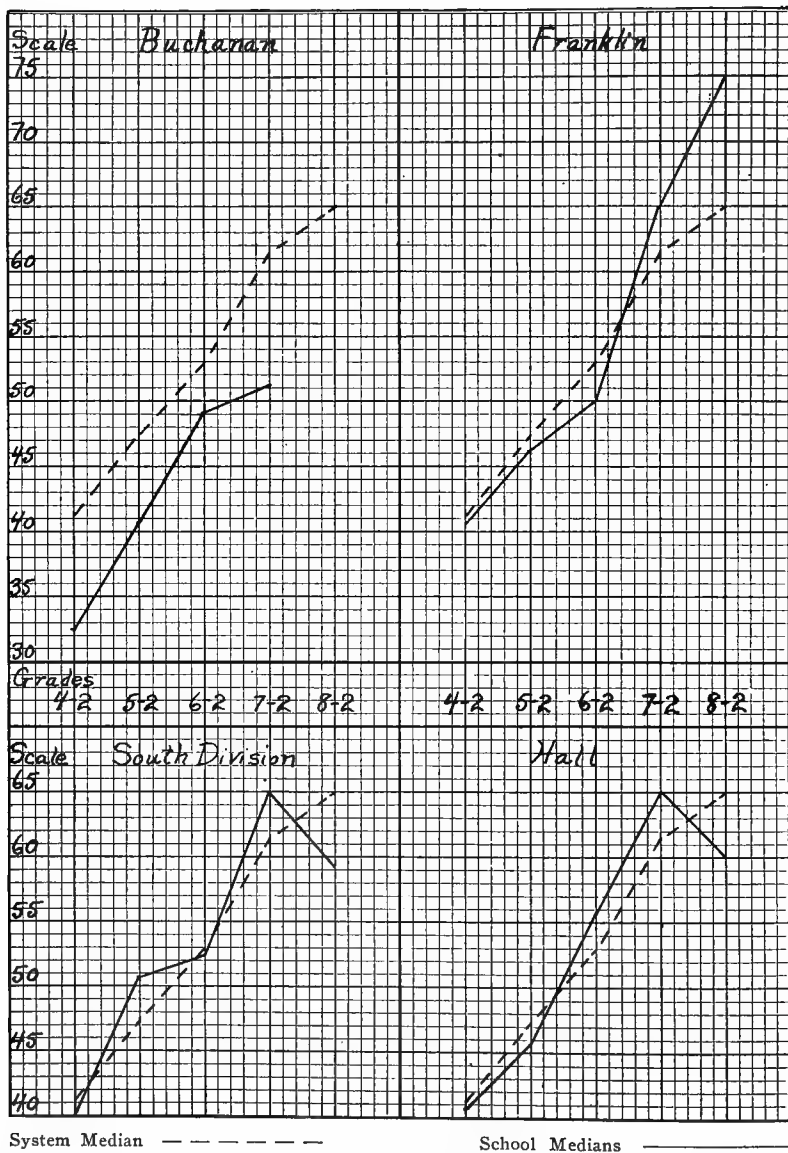
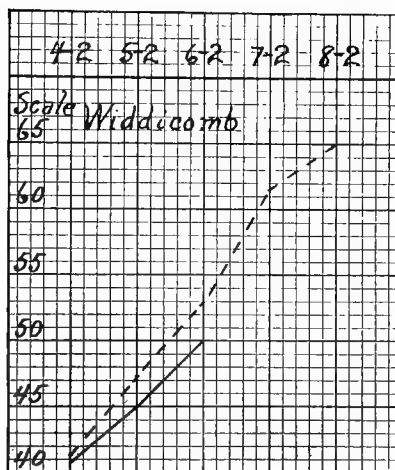


DIAGRAM XXXI (B)—Comparison of merit curve in composition of 17 schools of Grand Rapids with the curves of individual schools.



System Median — — — — —

School Medians —————

DIAGRAM XXXI (C)—Comparison of merit curve in composition of 17 schools of Grand Rapids with the curves of individual schools,

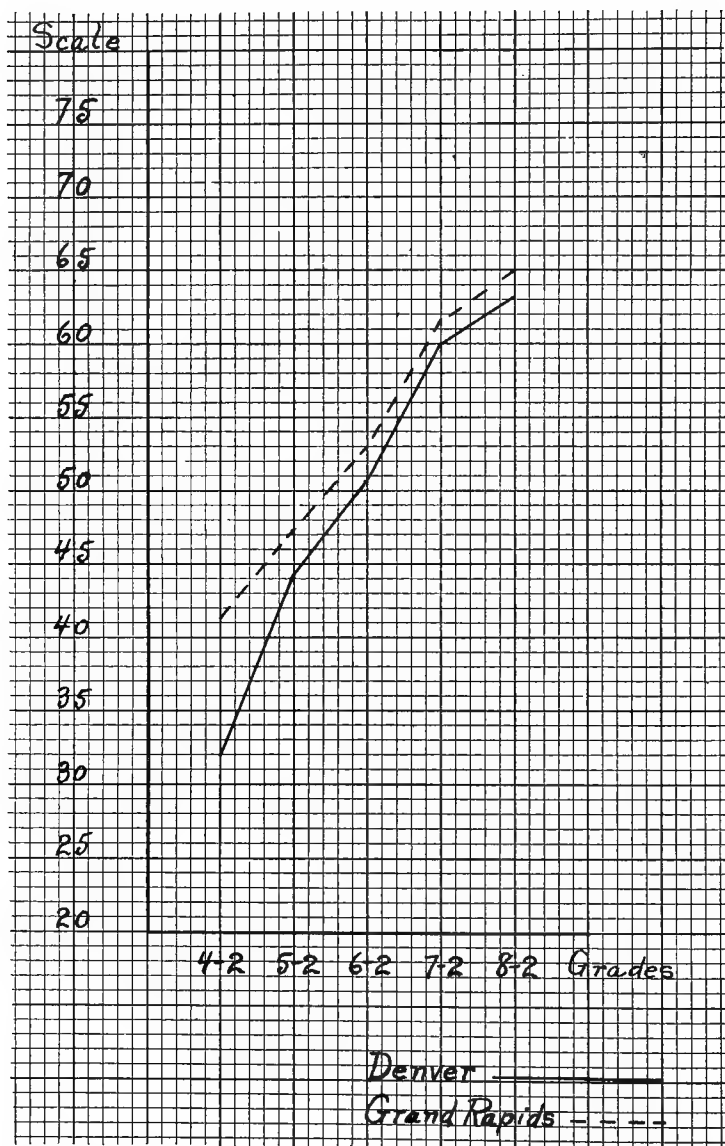


DIAGRAM XXXII—Comparison of merit curves in composition of Denver and Grand Rapids,

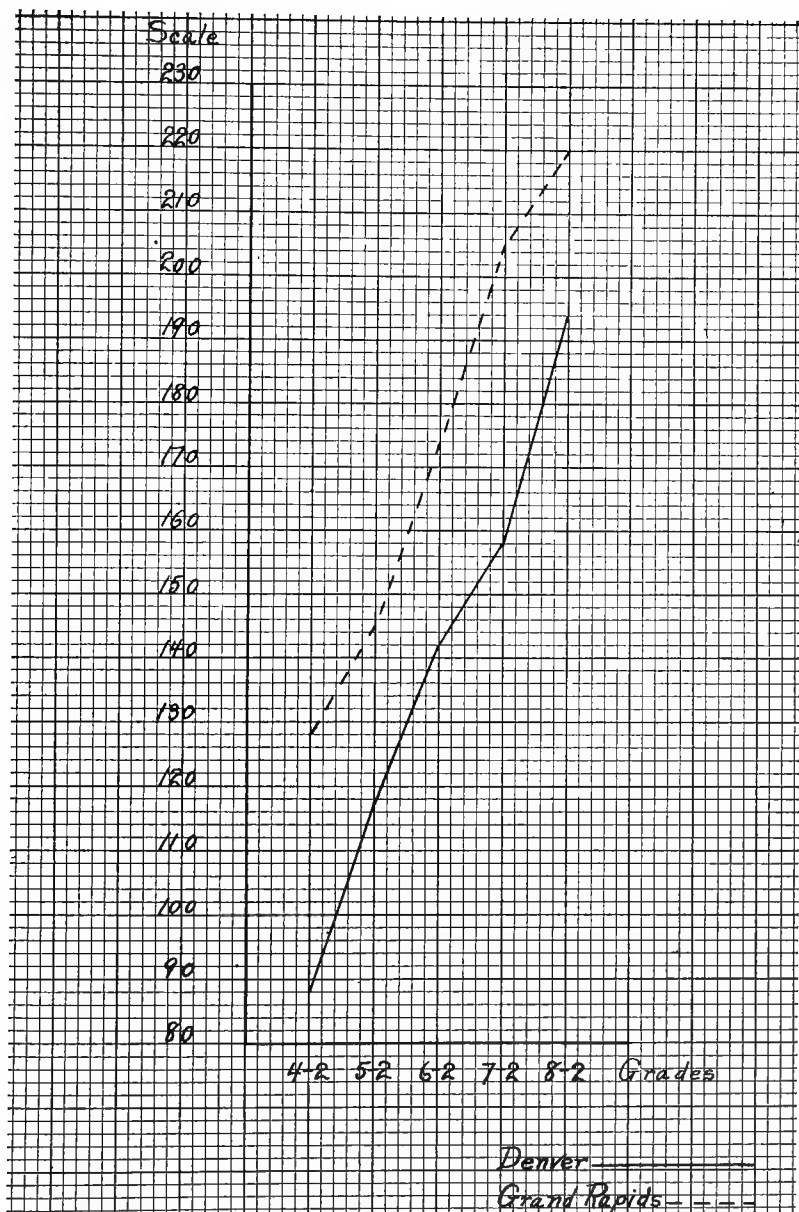


DIAGRAM XXXIII—Comparison of quantity curves in composition of Denver and Grand Rapids,

These diagrams will be referred to later in comparing the results of the test in the two systems.

Table XXI that follows gives the ranking of the schools in the case of each grade with respect to merit. When schools have the same medians in particular grades they are arranged alphabetically. This is most noticeable in grade 7-2.

It will be seen at once that schools do not rank at all consistently throughout their grades. For example, Lexington ranks first in 4-2, eleventh in 5-2, third in 6-2, fifth in 7-2 and fourth in 8-2 and it is one of the most consistent. This lack of consistency from grade to grade makes it really impossible to rank the schools as units with much validity.

Another and more significant point to note in Table XXI is the range in medians from the lowest schools to the highest. For the successive grades these ranges are 16.1, 12.7, 15, 14.6 and 15.9. That is, the best class in any grade is a step and a half on the scale above the poorest. This is almost the equivalent of a three-year range in the system medians. On the basis of the system medians, the best classes in a grade are at least two years ahead of the poorest classes.

This, of course, may be inevitable and justifiable but the supervisors of these schools should recognize the fact that in composition the conditions described exist and call for some kind of treatment. Grand Rapids does not face, as do some other cities, difficulties growing out of the extensive use of foreign languages in the homes from which the children come. Nor are social conditions strikingly heterogeneous. Furthermore, where conditions in the home are unfavorable they do not always parallel the poor compositions. Some of the lowest classes are made up of American children from professional and business classes; while some of the highest classes are made up of children practically all of foreign parentage and from the poorer orders. It is easy to ascribe too great importance to these two factors in explaining situations like the above—especially in the upper grades.

The matter of the amount written has not been touched upon outside Table XX, and needs very little consideration. It appears to have little to do with the merit of the compositions. One possible exception to this is the 4-2 grade where the correlation is rather high. There are great differences between classes in this particular which suggest interesting subjects for local study.

In general the written composition of the Grand Rapids pupils impressed the writer favorably. It surpassed that of the

TABLE XXI

Merit Rankings of 17 Grand Rapids Schools.

GRADE 4-2		GRADE 5-2		GRADE 6-2		GRADE 7-2		GRADE 8-2		GRADES 4-2 to 7-2	
School	Merit Med's	School	Merit Med's	School	Merit Med's	School	Merit Med's	School	Merit Med's	School	Average of Merit Med's
1. Lexington	48.6	Coldbrook	53.5	Madison	60.0	Coldbrook	65.8	Franklin	75.0	Lexington	54.3
2. Lafayette	46.5	Plainfield	52.5	Jefferson	57.5	Plainfield	65.5	E. Leonard	72.5	Plainfield	53.9
3. Diamond	44.5	S. Division	50.8	Lafayette	57.5	Franklin	65.0	Sigsbee	69.1	Coldbrook	53.6
4. Madison	42.5	Palmer	50.5	Lexington	57.5	Hall	65.0	Lexington	67.5	Lafayette	53.5
5. Palmer	42.5	Jefferson	50.0	Sigsbee	57.5	Lexington	65.0	Diamond	65.3	Jefferson	52.4
6. Plainfield	42.5	Sigsbee	50.0	Hall	55.8	S. Division	65.0	Coldbrook	64.1	S. Division	52.1
7. Hall	40.8	Lafayette	49.1	Coldbrook	55.0	Union	64.0	Union	63.3	Hall	51.9
8. Jefferson	40.8	Straight	47.5	Plainfield	55.0	Jefferson	61.2	Palmer	62.5	Franklin	50.4
9. Widdicomb	40.8	Madison	46.5	S. Division	52.5	Lafayette	60.8	Hall	60.0	Sigsbee	50.1
10. Franklin	40.5	Franklin	46.2	Diamond	50.0	Palmer	58.7	S. Division	59.0	Palmer	49.8
11. Coldbrook	40.0	Lexington	46.2	Franklin	50.0	E. Leonard	55.9			Diamond	49.1
12. S. Division	40.0	Diamond	45.9	Widdicomb	50.0	Diamond	55.8			Union	47.1
13. Sigsbee	38.7	Hall	45.8	Buchanan	49.1	Straight	55.8			Straight	46.2
14. E. Leonard	37.5	Widdicomb	45.0	Union	49.1	Sigsbee	54.1			E. Leonard	45.2
15. Straight	35.0	E. Leonard	42.5	Palmer	47.5	Buchanan	51.2			Buchanan	43.4
16. Union	34.1	Union	41.2	Straight	46.5						
17. Buchanan	32.5	Buchanan	40.8	E. Leonard	45.0						
Range	16.1	Range	12.7	Range	15.0	Range	14.6	Range	15.9	Range	10.9

Denver pupils both in quantity and merit. The medians of the two are compared in this table:

TABLE XXII

Comparison of Medians of Quantity and of Merit in Composition between the Denver and Grand Rapids Schools.

	4-2		5-2		6-2		7-2		8-2	
	Quan.	Merit	Quan.	Merit	Quan.	Merit	Quan.	Merit	Quan.	Merit
Grand Rapids	128	41.2	145	47.3	174	53.0	205	61.5	220	65.0
Denver	88	32.2	118	44.7	142	50.9	158	60.0	193	63.5

So far as the fourth grade is concerned, the difference between the two systems is probably due mainly to handwriting. The Denver pupils in this grade have not developed the facility or the legibility that the Grand Rapids pupils of the same grade display. The difficulty which the Denver pupils experience in mechanical execution doubtless accounts in large measure for the poor product in composition. It will be noted that Grand Rapids is not able to maintain this initial lead, although never actually overtaken.

The stories of the Denver pupils were more exciting, more economically expressed, more to the point. The stories of the Grand Rapids pupils tended to be diffuse, to include much irrelevant matter and to lack interest and point. On the other hand, the Denver papers were weak on the side of spelling, punctuation, and grammatical expression, in all of which the Grand Rapids papers excelled.

The schools tested by the principals have not been included in the above discussion, lest the validity of the results or the comparisons be questioned. It is inevitable, of course, that the procedure under different examiners with little opportunity for training should vary in some particulars. There are indications that such was the case. On the whole, however, the results in these other schools, as given in the table below, are so much like those collected by the writer that they confirm the general judgments expressed above.

The merit medians of these schools where the principals gave the tests run somewhat higher than those of the group tested by the writer. This is particularly noticeable in the 8-2 grade where a median of 72.5 is 7.5 higher than the median of the same grade in the other groups. This speaks well for the concentration of eighth grades in the Junior High School and the South High School from which most of these papers came. The eighth grade papers in the other group, except those from Union High, all came from elementary schools.

TABLE XXIII

Table of Quantity and Merit Medians for Grand Rapids Schools Tested by Principals.

	GRADE 4-2		GRADE 5-2		GRADE 6-2		GRADE 7-2		GRADE 8-2	
	Med's Quan.	Med's Merit	Med's Quan.	Med's Merit	Med's Quan.	Med's Merit	Med's Quan.	Med's Merit	Med's Quan.	Med's Merit
Alexander	115	40.0	135	48.3	193	55.8	230	65.8	.....	.....
Coit	195	48.5	158	49.1	.....	.....	.....	.....	.....	.....
Congress	178	48.7	223	47.5	.....	.....	.....	.....	.....	.....
Fountain	148	48.7	178	62.5	.....	.....	.....	.....	.....	.....
Henry	140	45.5	200	50.8	.....	.....	.....	.....	.....	.....
Junior High .....	.....	.....	.....	.....	150	58.9	167	61.4	255	70.0
Michigan	225	42.5	275	49.1	185	55.8	.....	.....	.....	.....
North Division	165	42.5	.....	.....	.....	.....	.....	.....	.....	.....
Oakdale	150	45.0	158	42.5	170	47.5	.....	.....	.....	.....
Pine	140	46.5	130	47.5	155	50.8	158	69.1	.....	.....
Sheldon	120	37.5	200	45.8	145	55.0	.....	.....	.....	.....
Sibley	135	42.5	175	50.0	128	52.5	.....	.....	.....	.....
South High .....	.....	.....	.....	.....	.....	.....	205	62.5	210	73.0
Stocking	85	40.8	.....	.....	.....	.....	.....	.....	.....	.....
Turner	85	35.8	185	44.1	185	52.0	185	62.5	.....	.....
West Leonard	173	39.1	.....	.....	.....	.....	.....	.....	.....	.....
Evangeline .....	.....	.....	.....	.....	.....	*60.0	.....	.....	.....	.....
Medians of Group.....	147	44.1	178	49.3	160	53.7	185	65.0	235	72.5

Total number of papers received from these schools—1208.

Total number graded—522.

* The 17 girls writing compositions in the Evangeline school..ranged from the third grade to the ninth.

CHAPTER VI

TESTS IN ARITHMETIC

George S. Counts

In order to determine the degree of attainment that the children in the Grand Rapids schools have reached in the fundamental operations in arithmetic, tests were given to all pupils in grades 3-1 to 8-2 inclusive. The tests were given during the week of February 28 to March 3.

Nature of Test

The test used was composed of fifteen different sets of examples, designated as Sets A, B, C, D, E, F, G, H, I, J, K, L, M, N, and O. It was intended to cover the "fundamentals" of arithmetic. Of the fifteen sets, four were in addition, two in subtraction, three in multiplication, four in division, and two in fractions. The several sets in each operation appeared in the test in the order of their complexity but interwoven with the sets of the other operations. Thus, Set A was a set of examples in the addition of two figures, the very simplest sort of addition. Addition appeared again in Set E in the form of five-figure columns and again in Set J in the form of thirteen-figure columns, and finally in Set M which was composed of examples of four columns of five figures each. Sets B and F were sets in subtraction; Sets C, G, and L were in multiplication; Sets D, I, K, and N, in division; and Sets H and O in fractions.

Since the test was composed of fifteen sets and since it was desirable that each pupil attempt the examples in each set, it was necessary to make definite time allowances for the various sets. In determining the amount of time to be given to a particular set the attempt was made to make the allowance large enough to enable even the slowest pupil to solve at least one example and yet not large enough to permit even the most rapid pupil to solve all of the examples of the set. Thus, the time allowances ranged from thirty seconds to three minutes, depend-

ing on the complexity of the operation. The test used in Grand Rapids is a slightly improved form of the test which was used in the Cleveland survey.

Method of Giving Test

From the foregoing it is seen that the test is a complicated one, and care in giving it is required. The principals of the various schools were therefore called together the week the tests were to be given and the test and the method of giving it were gone over carefully. In order to further insure the results against error, or rather in order to determine the amount of error in the results, if any, the writer personally conducted the test in a majority of the grades in eight schools. In this way a body of comparative results was secured with which to determine the accuracy of the results in general. The giving of the tests was greatly facilitated by the fact that the schools use the Courtis practice forms in their daily work. These practice forms require the same type of work as that used in the tests.

In giving instructions to the principals it was asked that the Courtis signals for starting and stopping the pupils be used; that all the timing in each school be done by one person, preferably the principal; and that the testing be begun in the third grade and proceed up to the eighth in order that the timer in each school become experienced for the more important upper grades, more important because it is not until the sixth grade is reached that the pupils attempt all the sets.

Owing to the length of the test, twenty-two minutes of actual work being required, an interval of half a minute between each two sets of examples was allowed. Furthermore, two days were taken for the test, the first nine sets being given the first day and the remaining six sets the following day.

General Results

The general results for Grand Rapids as a whole appear in Table XXIV. The table is understood if read thus: The median number of examples solved correctly by the 3-1 grades throughout the city is 11.8, by the 3-2 grades 13.4, etc.

From the table it is seen that the third grades were able to work the examples in Sets A and B only. Pupils in these grades have not been introduced to the more complex forms of arithmetical operations and are consequently not familiar with them. Grade 4-1 tried more of the sets than did grade 3-2; 4-2 tried more than 4-1; and so on until finally grade 6-1 tried all of the sets.

As a general rule the table shows constant progress from

grade to grade beginning with a relatively small score. However, there are two striking exceptions to this general rule in the cases of Sets H and O which it will be remembered are sets in fractions. There thus seems to be a fundamental difference between the fractions and the other types of examples. In the case of simple addition, subtraction, multiplication, or division, the pupil is confronted with the task of making automatic certain straightforward responses. Here it is not so much a question of knowing how as it is of developing speed in making responses. For example, it does not take a pupil long to learn how to solve an example in long division, but it does require

TABLE XXIV

Medians for Each Arithmetic Test for All Grades.

TEST	GRADE											
	3-1	3-2	4-1	4-2	5-1	5-2	6-1	6-2	7-1	7-2	8-1	8-2
A	11.8	13.4	13.6	16.4	20.3	21.5	22.8	25.0	26.5	27.3	29.5	30.3
B	6.3	8.4	9.1	12.1	14.7	15.9	16.8	19.1	21.3	20.7	22.8	25.5
C			7.1	11.3	13.7	14.0	15.5	17.0	17.7	18.8	19.3	20.7
D			6.9	10.4	12.5	14.3	15.5	16.9	18.4	19.7	20.5	23.0
E			4.1	4.6	5.2	5.4	6.0	6.6	7.2	7.2	7.8	8.1
F			2.8	4.1	6.0	6.5	7.1	8.0	9.3	9.6	10.3	11.0
G			2.2	3.3	4.5	4.9	5.3	5.6	6.1	6.1	6.7	6.8
H						6.3	6.2	6.5	9.0	7.8	8.6	8.8
I			.7	.9	1.3	1.4	2.3	3.0	3.8	4.1	4.0	4.7
J				2.8	3.4	3.7	4.1	4.5	5.4	5.3	5.7	6.5
K					3.0	4.3	5.4	6.5	7.5	8.8	9.7	10.3
L					2.3	2.9	3.3	3.6	4.3	4.5	4.9	4.9
M					2.3	3.0	3.6	4.3	4.5	4.9	5.7	5.7
N					.7		1.1	1.4	1.7	1.8	2.0	2.3
O						.8	3.5	3.6	3.9	4.6	5.5	4.8

much time and much practice to develop speed in this sort of an operation. In the case of the fractions, on the other hand, it is more a question of knowing how than of long practice. This statement is borne out very forcefully by the large initial score made in each set of fractions. In H the median score of grade 5-2, the first grade attempting the set, is 6.3, while grade 8-2 makes a score of only 8.8. In the intermediate grades the score fluctuates up and down, and there is an utter lack of the consistent progress characteristic of the other types of operations. This certainly means that if the pupil knows how to solve a particular example in fractions, it requires but little time or energy to do it.

This discussion raises the whole question of the teaching of fractions. Efficiency in the four fundamentals seemingly requires long and continuous training, while efficiency in solving fractions seems to be easily acquired and easily lost. The teaching of the former should, therefore, be begun early, but would it not be wise to postpone the teaching of fractions until the

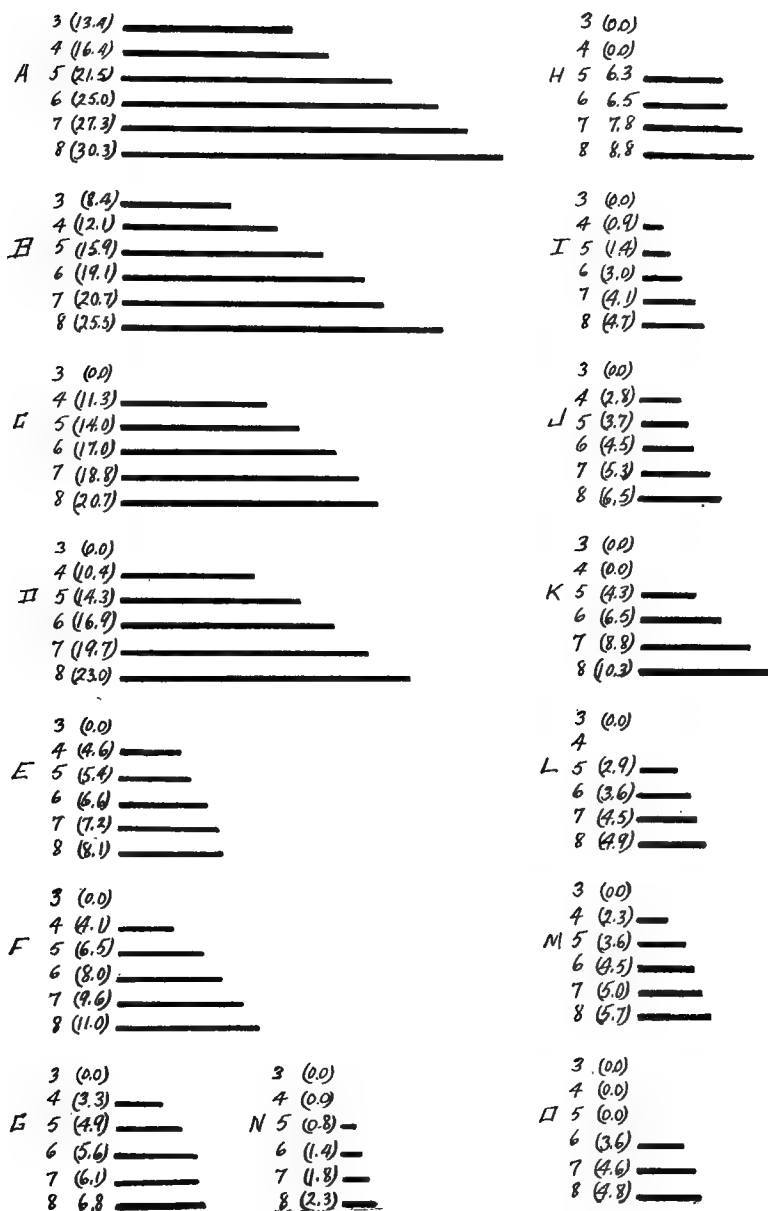


DIAGRAM XXXIV—Median records for all schools in the 15 arithmetic tests.

pupil is sufficiently mature to receive thorough instruction in this complex type of operation?

In Diagram XXXIV the facts set forth in Table XXIV are graphically presented with the qualification, however, that the scores for the younger section of each grade, i. e. 3-1, 4-1, etc., are omitted.

Comparison With Cleveland

Since the arithmetic test used in Grand Rapids was, with a few minor modifications, the test used in the survey of the Cleveland schools, it is possible to make some very interesting comparisons between the two school systems in the matter of arithmetical attainment.

Through a process of weighting it was possible to convert the score made in each set into the terms of a basic unit. By adding together "units" or "points" thus made in all the sets by

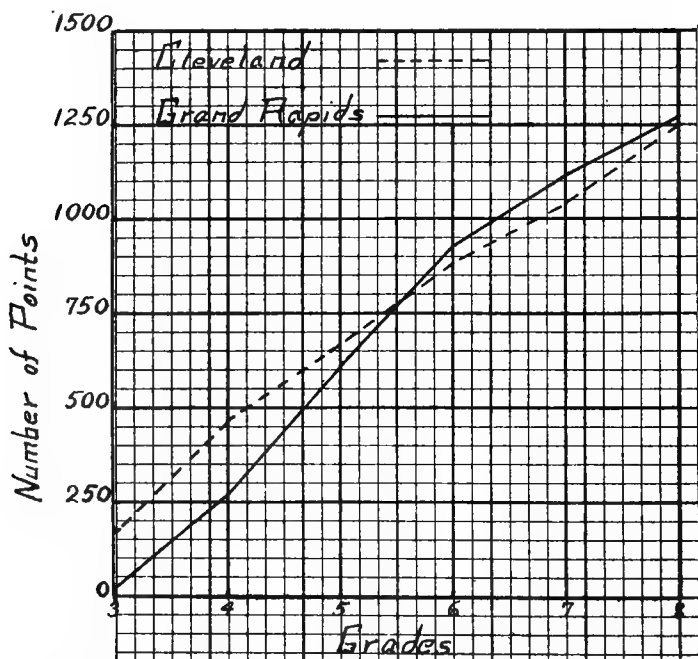


DIAGRAM XXXV—A comparison of median total scores made in the 15 sets of the arithmetic test by 3rd, 4th, 5th, 6th, 7th and 8th grades in Cleveland and Grand Rapids.

a particular pupil, grade, or school, a total score was obtained which would singly represent the scores made in all of the sets by that particular pupil, grade or school.

Following this system of weighting, the median records for each of the grades in both Cleveland and Grand Rapids were thrown into a total score. A comparison of these total scores made by the several grades in the two cities appears in Diagram XXXV. The solid line represents the progress made in arithmetic from grade to grade by the pupils in the Grand Rapids schools as evidenced by the records made in the "fundamentals"; the broken line represents Cleveland. The diagram shows Cleveland to be distinctly superior in the three lower grades, but Grand Rapids forges ahead in the sixth grade and maintains the lead through the seventh and eighth grades.

This comparison is favorable to the Grand Rapids schools because the final attainment in the upper grades is the desirable thing. Cleveland spends more time on arithmetic in the lower

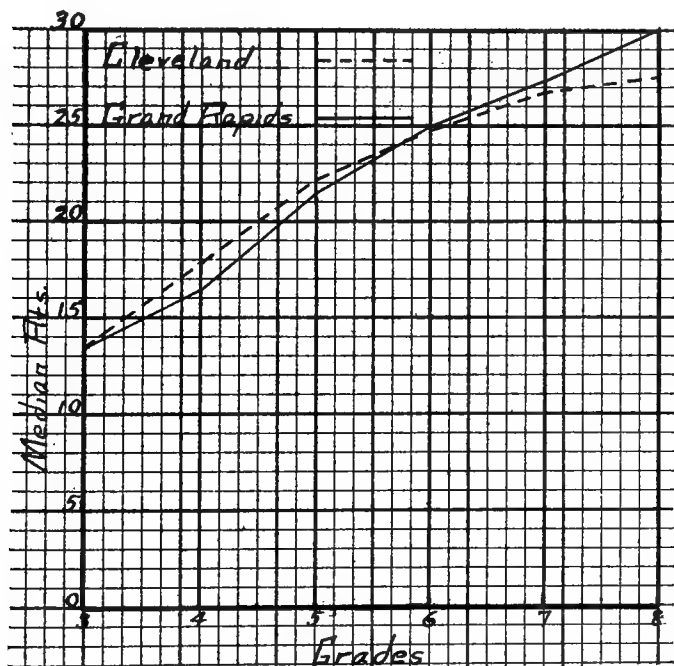


DIAGRAM XXXVI—A comparison of the median number of examples solved correctly in Set "A" by grades 3 to 8 inclusive in Cleveland and Grand Rapids.

grades than does Grand Rapids, but this extra expenditure of time seems to be of no avail in the long run. However, since the scores represented in this diagram are composite scores, it is necessary to make a further analysis of the records made by the two city systems to find out whether or not Grand Rapids is uniformly superior in all types of the arithmetical processes occurring in the test.

We turn, therefore, to Diagram XXXVI, in which the two cities are compared as to attainment in Set A, the simplest set of examples in addition. In general, the relations between the two curves here are similar to those shown in the previous diagram. The differences, however, while of the same sort, are not so marked here as in the comparison of total scores. This same statement holds true if applied to any one of the first four sets of the test which are the very simple sets in addition, subtraction, multiplication, and division. Indeed, in Set B, subtraction, the Cleveland scores are consistently higher than the Grand Rapids scores throughout the grades. It may be said, therefore,

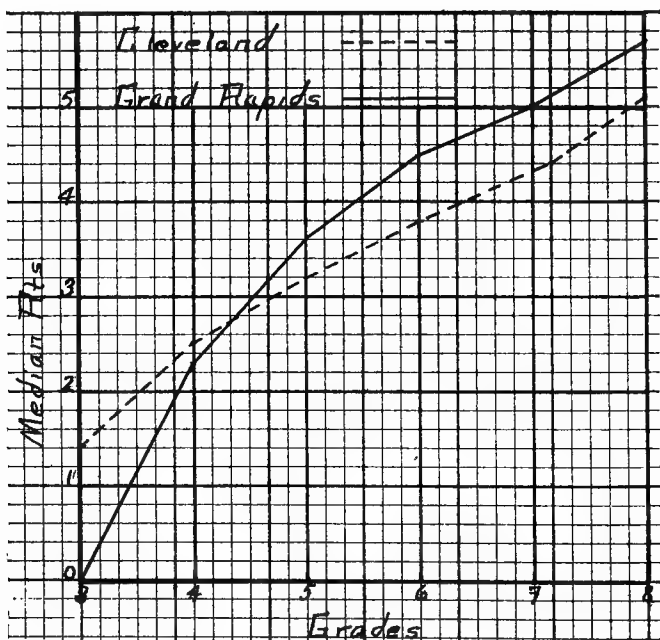


DIAGRAM XXXVII—A comparison of the median number of examples solved correctly in Set "M" by grades 3 to 8 inclusive in Cleveland and Grand Rapids.

that the general superiority of the latter over the former is not due to superiority in the very simple combinations.

Let us pass, therefore, to the next diagram, Diagram XXXVII, and compare the two cities in Set M, the addition of four columns of five figures each. Here a large initial advantage on the side of Cleveland is overcome between the fourth and fifth grades, and from that point on Grand Rapids shows decided superiority. An interesting and significant contrast may be drawn between Diagrams XXXVI and XXXVII if it will be remembered that they represent respectively a simple and a complex type of addition. There is little difference between the two systems in the mastery of the former process, while in the latter and more important process the difference becomes marked.

The attainment of the two systems in Set F, the more difficult to the two sets in subtraction, which is the subtraction of three-place from three and four-place numbers, is shown in Dia-

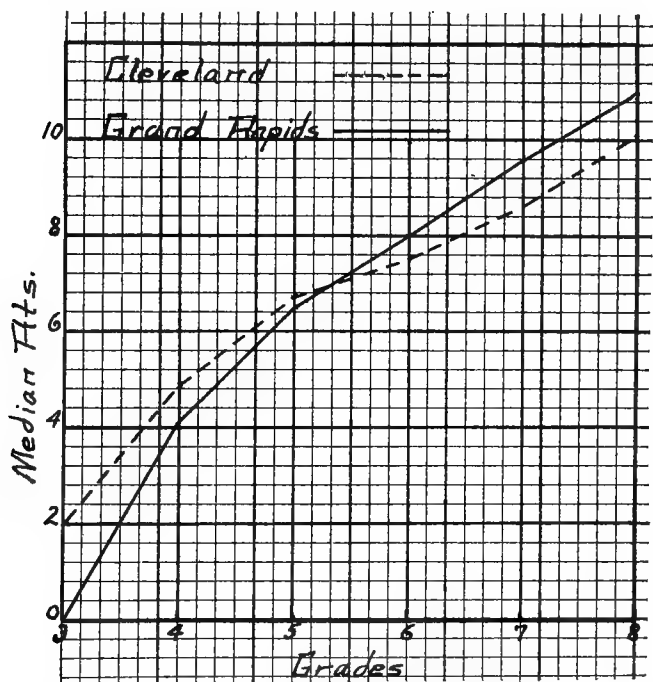


DIAGRAM XXXVIII—A comparison of the median number of examples solved correctly in Set "F" by grades 3 to 8 inclusive in Cleveland and Grand Rapids.

gram XXXVIII. The diagram resembles the previous diagrams so closely that little comment is necessary. Greater differences between the cities appear than in Set A, but not so great as in Set M. In complexity it would seem that Set F is intermediate between the other two sets.

Turning to Diagram XXXIX, we find the differences between Cleveland and Grand Rapids more marked than in any of the other diagrams. Here the scores made in Set L, the most complicated and difficult set in multiplication in which four-place numbers are multiplied by two-place numbers, are compared. It seems to be in this type of process that Grand Rapids, as compared with Cleveland, shows the greatest superiority. In the seventh and eighth grades the pupils in the former city actually solve one more example on the average than do pupils in the latter city.

A glance at Diagram XL indicates the weakness of Grand Rapids. Here are graphically represented the scores made in Set N, the most difficult set in division, the division of five-place

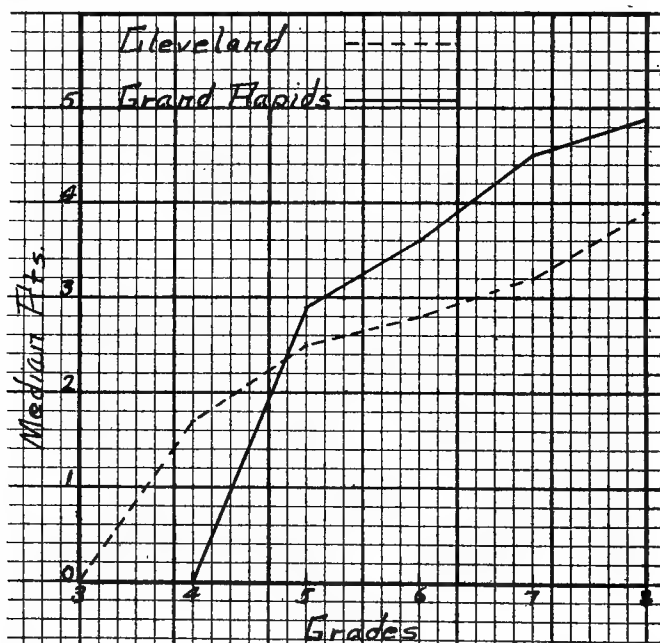


DIAGRAM XXXIX—A comparison of the median number of examples solved correctly in Set "L" by grades 3 to 8 inclusive in Cleveland and Grand Rapids.

numbers by two-place numbers in which there is much carrying to be done and a "trial divisor" is necessary. In Set K, a simpler set in long division, Grand Rapids is also inferior to Cleveland; in Set I, a set in short division, the two cities show about equal attainment.

It seems, therefore, that Grand Rapids is weak in division and especially weak in that type of long division represented by Set N. The weakness at this point is very likely due to the fact that the type of example found in Set N does not appear in the Courtis exercises. Through the Courtis exercises the pupils had become familiar with most of the arithmetical operations presented to them in this test but here the pupils encountered something for which they had not been definitely prepared, as is shown in Diagram XL.

In the application of the four fundamentals to fractions the two systems show approximately equal attainment. This is shown graphically in Diagram XLI which represents the scores made in Set O. An examination of the facts regarding Set H,

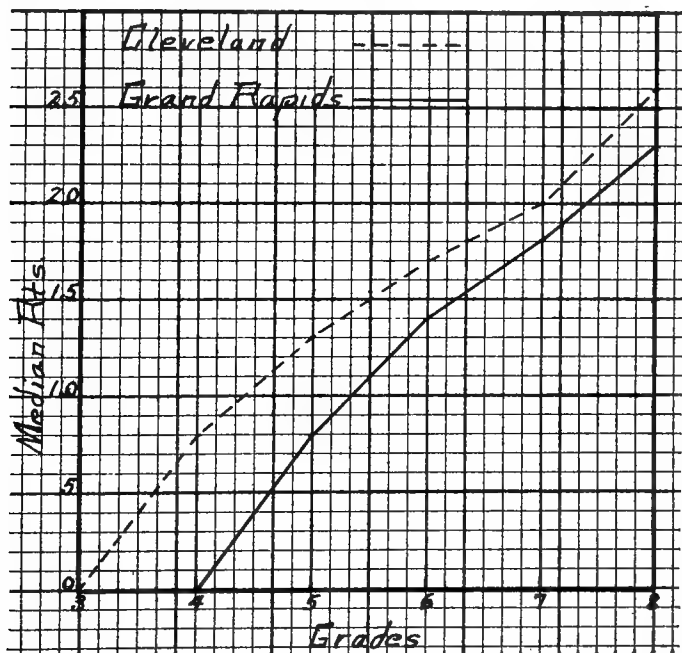


DIAGRAM XL—A comparison of the median number of examples solved correctly in Set "N" by grades 3 to 8 inclusive in Cleveland and Grand Rapids.

the other set of fractions, shows about the same conditions.

From the comparisons thus made between Grand Rapids and Cleveland it is seen that there is little superiority one way or the other in the simple combinations; that in the more complex types of addition, subtraction, and multiplication, Grand Rapids is distinctly superior; that in long division Grand Rapids shows a decided weakness; and that in fractions the two cities are on a par.

Variations Among the Schools

The method of comparison which has been employed up to this point in bringing out the characteristics of the Grand Rapids school system can be extended to a study of individual schools. Indeed, the comparison of individual schools within the system is in many ways more productive than an external

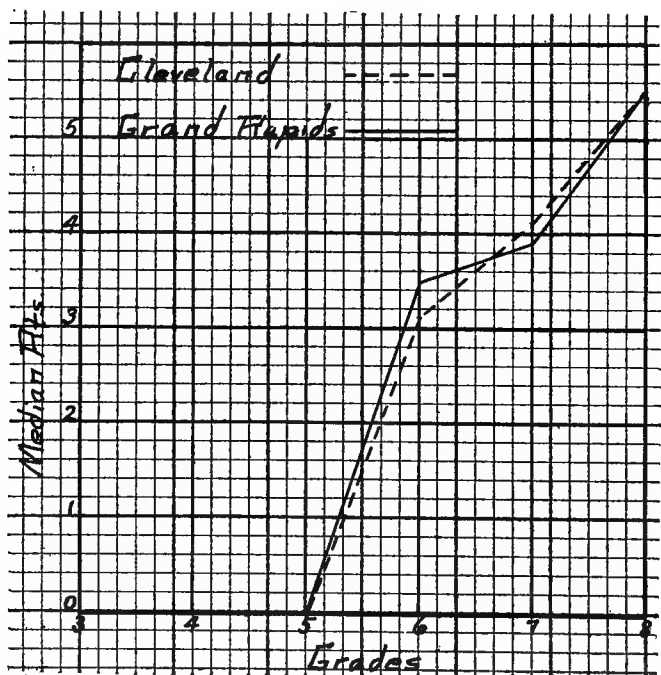


DIAGRAM XLI—A comparison of the median number of examples solved correctly in Set "D" by grades 3 to 8 inclusive in Cleveland and Grand Rapids.

comparison because such internal comparison can be repeated from time to time by the officers of the system itself as a means of determining improvement within the system.

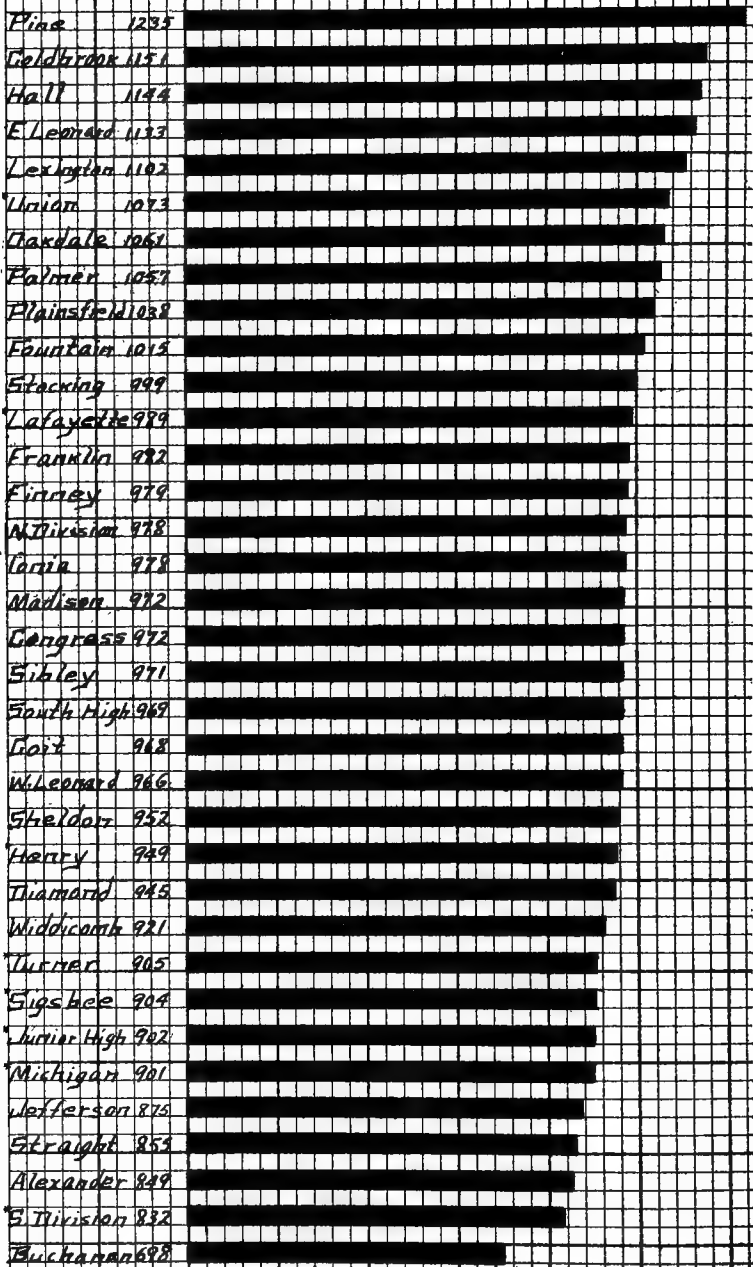
In every school system there is variation from school to school as there is variation from class to class in a school and from individual to individual in a class. It should be noted, however, that variation from individual to individual and variation from class to class in the same grade or from school to school in the same system are not equally justifiable. Variations among individuals, in so far as they are due to native endowment, are matters over which we have no control, and no attempt should be made to abolish them. In the case of variations between schools the matter is entirely different. In so far as the populations of two schools are different in mental equipment, which is ordinarily very slight, different records made by those two schools are justifiable. More striking differences in results are due to differences in methods of teaching, differences in aim, differences in standards, etc., and should be eliminated.

The elimination of these differences from school to school and from class to class is the task of the supervisory staff. This staff should have a standard of arithmetical attainment for each grade and should know whether or not a particular class in a particular school is approaching the standard. If the class in question is found not to be approaching the standard adopted, the supervisor should determine the reason. That is the distinct function of the supervisor if he is to function at all. We are justified, therefore, in the conclusion that the variations found in arithmetical ability from school to school and from class to class in the same school indicate lack of supervision, while uniformity indicates strong supervision.

In Diagram XLII we find a graphical representation of the facts which bear on this question. A comparison of the average scores made by thirty-five schools is here exhibited. As explained in the diagram, an average score for each school was obtained by averaging the median scores made by grades 3-1 to 8-2 inclusive.

The diagram shows marked uniformity from school to school. As a basis for improvement in supervision this diagram presents encouragement because of the high degree of uniformity already obtained and a clear indication of the problems of the system. The better schools and those at the bottom of the diagram should be studied intensively by their principals and by the central officers of the system.

For the purpose of indicating supervision or lack of it in a particular grade Diagram XLIII has been devised. In this dia-



*In these schools the testing was done quite largely by a member of the survey staff.
 DIAGRAM XLII—A comparison of the average scores made by 35 schools. An average score for each school was obtained by averaging the median scores made by grades 3-1 to 8-2 inclusive.

gram a comparison of the records made in the four sets in addition, Sets A, E, J, and M, by the 6-2 grades in three schools, Sigsbee, Lafayette, and Turner, is made. The figures at the points of intersection of the lines represent the median scores made by the indicated grades in the indicated sets in all the schools. The vertical lines are so drawn as to represent the standards of attainment for the several grades in the four sets as determined by the median attainment of Grand Rapids children, the heavy vertical line representing the standard for the sixth grade.

An examination of this diagram reveals some interesting facts. The record of grade 6-2 in Sigsbee indicates a desirable condition. The pupils in this class show uniformly high attain-

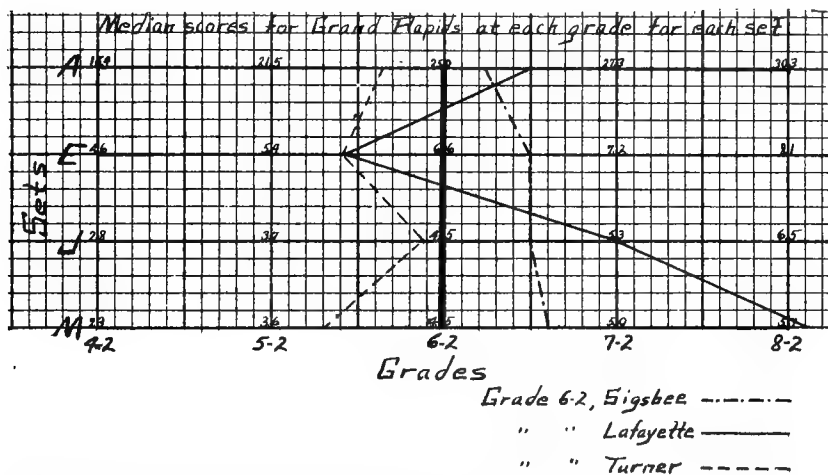


DIAGRAM XLIII—A comparison of records made in the four sets in addition (A, E, J, M) by the 6-2 grades in three schools, Sigsbee, Lafayette and Turner.

The figures at the points of intersection of the lines represent the median scores made by the indicated grades in the indicated sets in Grand Rapids.

ment in all four sets. This means proper emphasis on the different types of addition and consequently a well-supervised class. A glance at the record made by the same grade in the Lafayette School shows a different state of affairs. For some reason or other the class is weak in Set E, i. e., in the short-column addition, while in Set M this sixth-grade class exhibits eighth-grade ability. This shows disproportionate emphasis on certain arithmetical process and perhaps disproportionate emphasis on arithmetic at the expense of other subjects. Of course, this last

statement is only a surmise and is thrown out merely as a word of caution. Turning to the diagram again, our record shows the sixth grade in the Turner School to be uniformly low in all four sets. The uniformity and the position of the class call for careful study and explanation. Thus, we see that, so far as this analysis goes, the Sigsbee class is a well-organized class, doing a high grade of work; the Lafayette class is doing generally a high grade of work but lacks standards which means loose supervision; the Turner class is a uniformly organized class doing a low grade of work.

To further indicate variations among the schools Diagram XLIV is presented. In this diagram the median scores made by the 4-2 grades in 31 schools and by the 6-2 grades in 25 schools

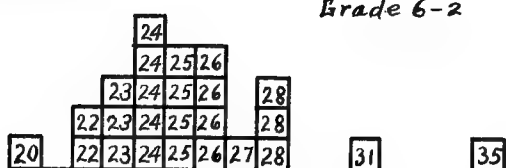
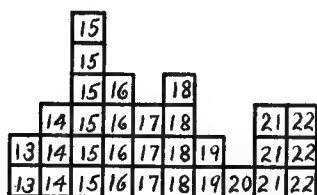


DIAGRAM XLIV—Median scores of 4-2 grades in 31 schools and of 6-2 grades in 25 schools in Set "A", simple addition.

in Set A, simple addition, are shown graphically. Each of the squares represents a school, and the number in the square is the median score made by the grade in the school represented. The diagram shows some overlapping between the two grades. Six of the sixth grades do no better in the test than some of the fourth grades.

If we may now return to the Cleveland records, an interesting comparison may be drawn in this matter of overlapping. This comparison is made in Diagram XLV in which is graphically presented the range of the median scores made in Set A by the "middle fifty per cent" of the schools in Cleveland and Grand Rapids for each grade. In order to get the first line in the diagram for the third grade in Grand Rapids, for example, the 32 schools having third grades were arranged in order from

the highest to the lowest on the basis of the scores made in Set A. Since there were 32 schools the eighth and the twenty-fourth schools approximately enclosed the middle fifty per cent. The scores of these two schools were 12.2 and 14.8 respectively. Their difference is 2.6, which is thus taken to represent the range of the middle fifty per cent.

Now, returning to the diagram, we note that for each grade the range thus determined is less for Grand Rapids than it is for

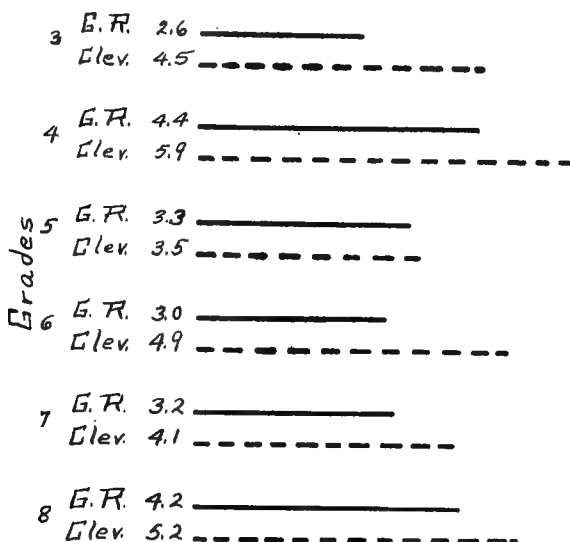


DIAGRAM XLV—Range of median scores made in Set "A" by the "middle fifty per cent" of the schools in Cleveland and Grand Rapids for each grade.

Cleveland. This means that, so far as the records made in Set A are concerned, there is less variation among the schools of Grand Rapids than there is among the Cleveland schools.

Accuracy

A few words should be said concerning accuracy. Up to this point only the examples correctly solved have been counted. In all of the grades pupils "attempted" problems which they did not solve. We shall, therefore, distinguish from this point on "attempts" from "rights". In general, accuracy increases with the grades and is lower in the more complex than in the simpler operations. In Diagram XLVI we find a comparison of

the median number of examples attempted and the median number of examples solved correctly in Set M by the several grades. Set M was chosen because it shows the typical relation between the "rights" and "attempts" which exists in the four fundamentals, which include all sets except Sets H and O. The one fact to be brought out is the uniform progress in both "attempts" and "rights".

In Diagram XLVII we find an entirely different sort of relation existing between the two curves which represent the

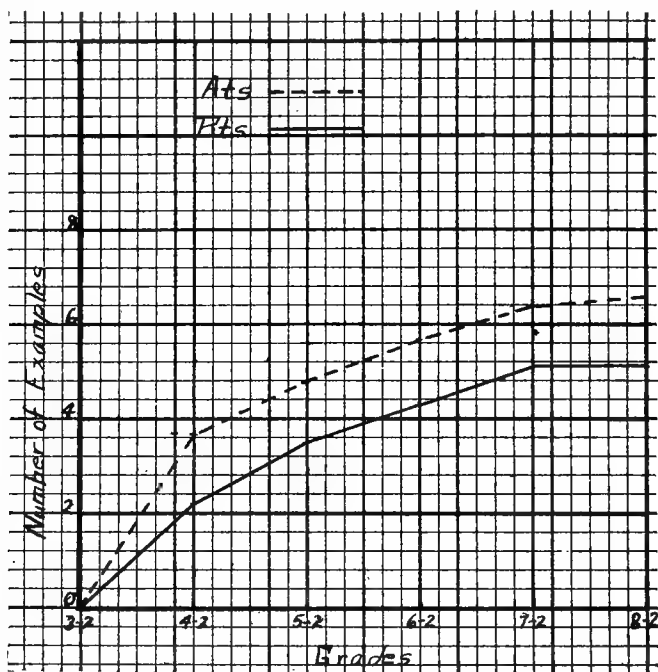


DIAGRAM XLVI—A comparison of the median number of examples attempted and the median number of examples solved correctly in Set "M" by the grades indicated.

median number of examples attempted and the median number of examples solved correctly in Set O by the grades indicated. The uniform progress in both "attempts" and "rights" characteristic of the fundamentals is here utterly lacking. Up to grade 7-1 the number of examples attempted increases more rapidly than does the number solved correctly, but from that

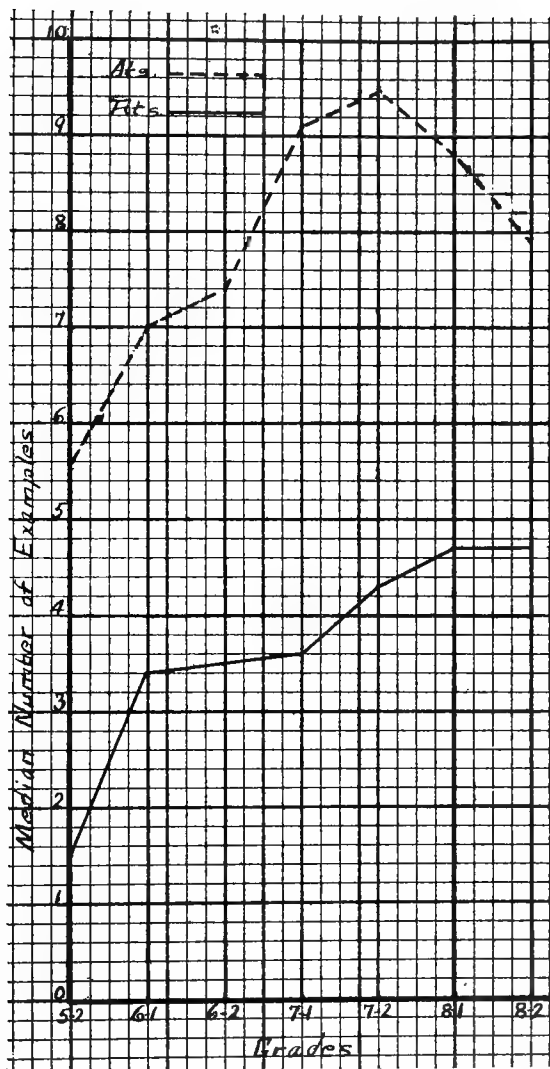


DIAGRAM XLVII—A comparison of the median number of examples attempted and the median number of examples solved correctly in Set O by the grades indicated.

point on the number of "attempts" increases less rapidly, and in both eighth grades there is an actual decrease of "attempts" accompanied in 8-1 by an increase of "rights". All of this goes

to reinforce what was said earlier in the report concerning the need of approaching the teaching of fractions in a manner quite different from that used in teaching the four fundamentals.

Furthermore, the studies set forth in the foregoing paragraphs indicate the way in which a school system ought to analyze its results so as to check its methods. Only by a careful analysis of those lines in which the school is working can methods of teaching be refined.

Some Facts About Age and Promotion

In connection with the arithmetic tests a large number of facts was secured regarding the promotion and non-promotion of pupils taking the tests. In Diagram XLVIII there is a comparison of the records made by three groups of 50 pupils each in

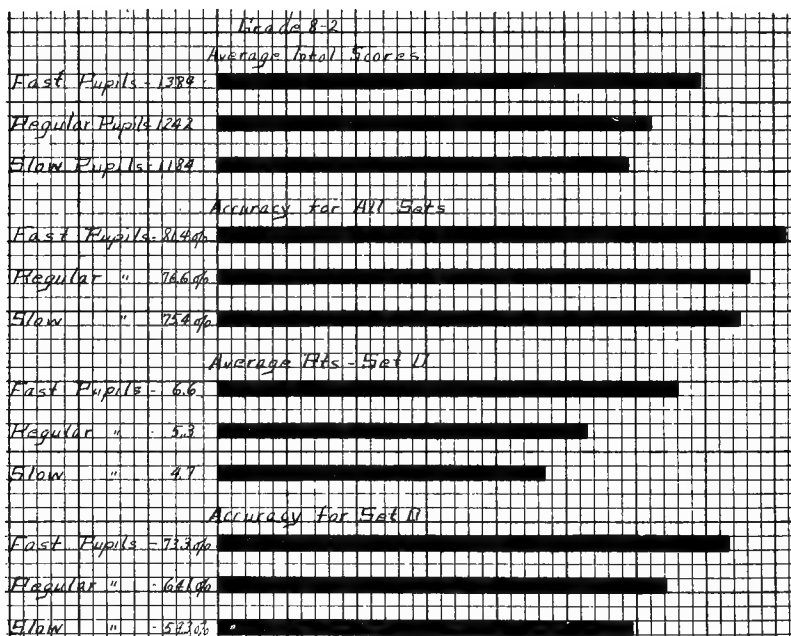


DIAGRAM XLVIII—A comparison of the records made by three groups of pupils in grade 8-2. The "fast" pupils are those who have skipped one or more grades; the "slow" pupils are those who have repeated one or more grades; and the "regular" pupils are those who have neither skipped nor repeated. Data from 50 pupils in each group.

grade 8-2, a "fast" group, a "slow" group, and a "regular" group. The "fast" pupils are those who have skipped one or more grades; the "slow" pupils are those who have repeated one or more grades; and the "regular" pupils are those who have neither skipped nor repeated. In securing the 50 pupils for each group, the same number for each group was taken from each school. Thus, if three "fast" pupils were taken from the Union School, there were also three "slow" and three "regular" pupils taken from that school. The number was limited because of the mechanical difficulty of handling the material. The cases used for the comparison are numerous enough to assure a fair sampling of the whole system.

The diagram shows that in accuracy and in speed the pupils who have skipped one or more grades are superior to those who

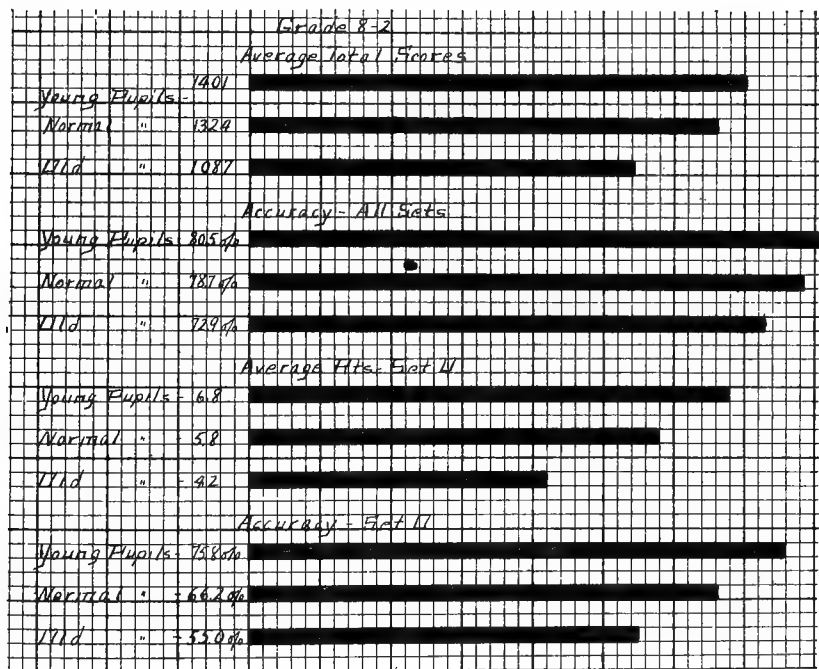


DIAGRAM XLIX—A comparison of the records made by three groups of pupils in grade 8-2. The 150 pupils whose records furnish the data for diagram XLVIII were redistributed into three groups on the basis of age, the 50 youngest being put in one group, the 50 oldest in a second group, and the remaining 50 in a third group, designated in the diagram as "normal."

have made just normal progress, and the latter are in turn superior to those who have repeated. These differences appear to be more pronounced in Set O than for the test as a whole, and this is especially significant because Set O demands a higher type of mental activity than do the other arithmetical operations.

These 150 pupils were redistributed into three groups on the basis of age, the 50 youngest being put in one group, the 50 oldest in a second group, and the remaining 50 in a third group designated as "normal". The records made by these three groups are compared in Diagram XLIX. The surprising fact brought out here is that the differences between the two extreme groups were not only not diminished by this redistribution but were actually increased; that is, the "young" pupils are more

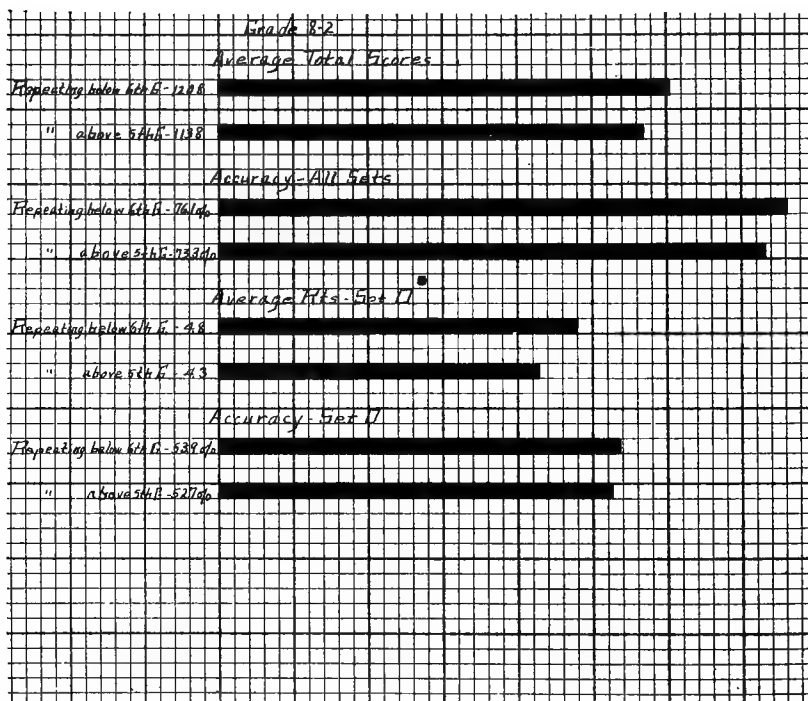


DIAGRAM L—A comparison of the records made by two groups of pupils in grade 8-2, the one group containing those pupils who had failed or repeated a grade below the 6th grade, the other those who had failed or repeated in the 6th grade or above.

superior to the "old" pupils than the "fast" pupils are to the "slow" pupils.

The important consideration in this connection is that under our present system pupils are often held back on account of their youth. This is certainly not desirable. Special provision should be made for the bright pupil so that he may make the most rapid progress consistent with his physical welfare.

In Diagram L another comparison is presented between the records made by two other groups of pupils in grade 8-2. Those pupils who had ever repeated a grade were divided into two divisions, the one containing those who had repeated a grade below the sixth, the other containing those who had repeated a grade above the fifth. The diagram shows a slight difference in favor of the group repeating below the sixth

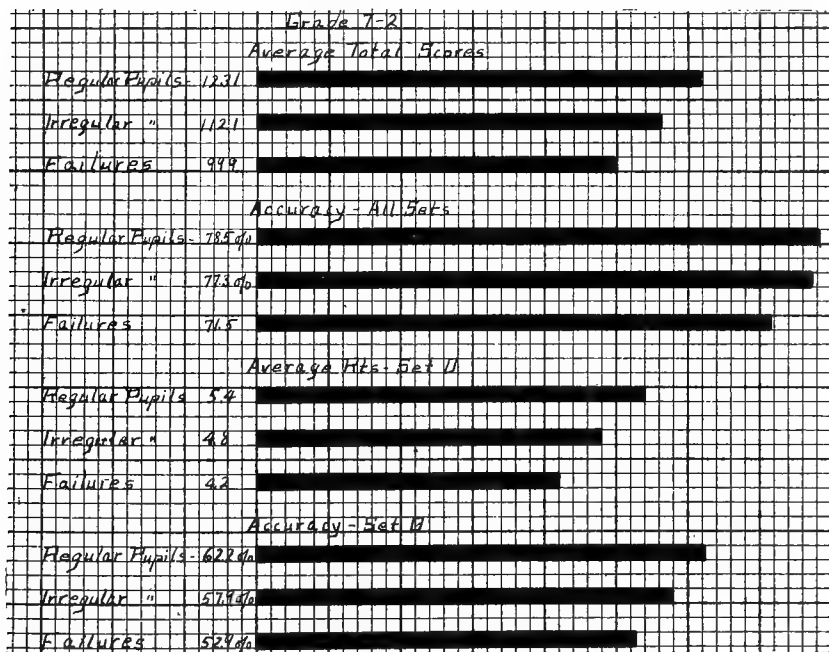


DIAGRAM LI—A comparison of the records made by three groups of pupils in grade 7-2. The "regular" pupils are those who have made normal progress, neither repeating nor skipping a grade; the "irregular" pupils are those who have repeated because of transfer from one school to another, sickness, etc.; and the "failures" are pupils who have repeated because of failure. Data from 54 pupils in each group.

grade. This may be due to recovery from the cause of failure, or it may be due to a difference in the causes of failure in the lower and upper grades. This latter interpretation may be inferred from a statement made by a pupil when he wrote as an explanation of non-promotion that he "did not realize what it meant."

In order to see the relation between causes of repeating and records made in the test we now turn to Diagram LI. Here we find a comparison of the records made by three groups of pupils in grade 7-2, the "regular" pupils, the "irregular" pupils, and the "failures". The "regular" pupils are those who have made normal progress, neither skipping nor repeating a grade; the "irregular" pupils are those who have repeated because of transfer from one school to another, sickness, etc.; and the "failures" are pupils who have repeated because of failure.

An examination of the diagram shows the "regular" pupils to have made better records than the "irregular" pupils, and the latter to have made better records than the "failures". The really significant feature of the diagram is the difference which is shown to exist between the first two groups. Why did the "regular" pupils do better than the "irregular" pupils? It would seem that, since the pupils in the latter group repeated because of transfer, sickness, or some similar cause, "repeating" itself may be largely responsible for the differences. The repeating of a grade, whatever the cause, cannot fail to react upon the child. It is therefore seen to be highly desirable in the light of the facts here presented to study carefully the whole system of promotion.

CHAPTER VII

PENMANSHIP

Frank S. Freeman

Grand Rapids adopted about five years ago a new system of penmanship. Up to that time the writing was not regarded as satisfactory. A part of the difficulty was thought to be due to the inability of the teachers themselves to write well enough to furnish a good example to the pupils. Accordingly, by action of the Board of Education, all teachers in the elementary schools were required, as a condition of promotion, to secure a Palmer certificate. This rule has been recently enforced with strictness and the writing in the schools is reported to be greatly improved.

The supervision of the handwriting under the system now in force is conducted by an agency outside the school organization. The compensation for this supervision is obtained through the sale of writing manuals to the pupils and, to a less degree, through the receipt of fees from the teachers in return for certificate of attainment in penmanship.

The school system is relieved by the present plan of some expense in the matter of supervision, but the cost of the writing books and the fee exacted from the teachers is, of course, an offset to this apparent economy. The community as a whole pays for supervision in this case but there is danger that certain important problems will not be fully understood by the teachers and principals, or be solved, because of the absence of vigorous study of methods within the system.

In order to study the handwriting in the schools, specimens were collected from approximately all of the children in the elementary schools. Two types of specimens were collected, one of which was obtained through the formal test and the other through a composition test.

In preparation for the formal test, the pupils were required to memorize selections suited to their grade, the selections being uniform for the same grade throughout the city. At the time

of the test, the pupils wrote for two minutes continuously. It is possible to determine the speed by the amount written in this definite time. The quality was determined by comparison with the Ayres Handwriting Scale. In the composition test, nothing was said to the pupils about their writing and they did not know that this was to be tested. The speed, of course, could not be measured in this test.

The method of making the test was thoroughly explained to the principals in conference. The tests were made by the writer in nine of the thirty-six buildings, and the principals made the tests themselves in the other buildings. The results from

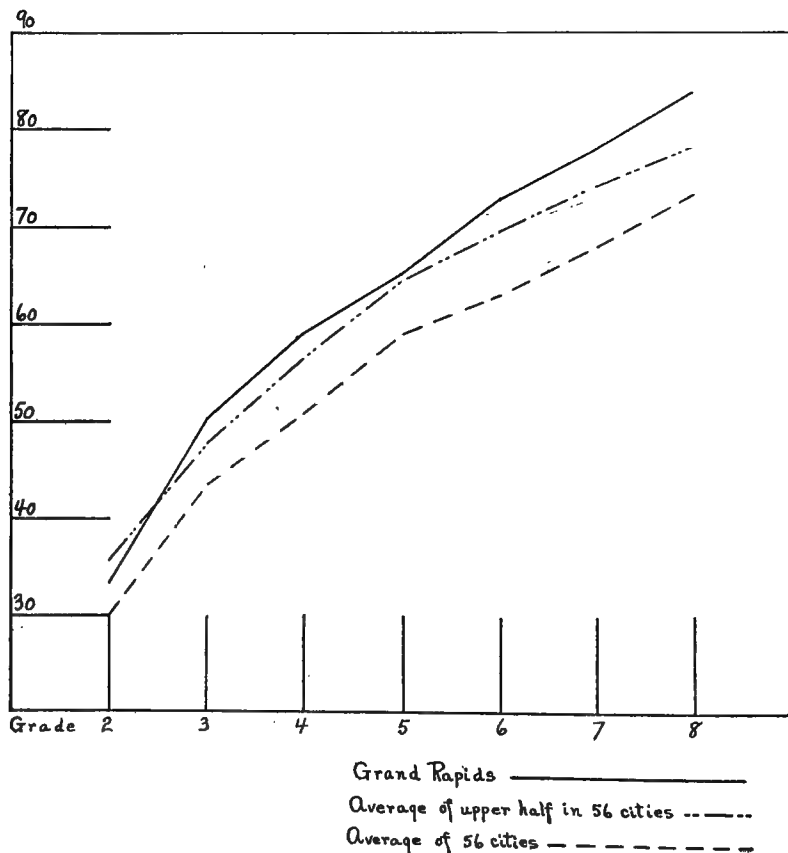


DIAGRAM LII—Comparison of the speed of writing in Grand Rapids and in 56 cities.

the nine schools tested by the writer do not differ materially from those of the others.

The papers were all collected and graded by one person under the supervision of the writer. The grader is a man who had been prepared by previous experience and training to do this work. All of the papers from the formal test, as well as the composition test, were graded and the speed of writing calculated.

Table XXV presented the results of the tests for each grade in the system as a whole.

TABLE XXV

Showing Median Speed of Writing and Median Rank in Form in Writing and Composition Tests for Each Grade in the Grand Rapids Schools.

GRADE	II	III	IV	V	VI	VII	VIII
Speed	33.5	50.1	59.3	64.9	73.0	77.9	84.3
Form (writing test).....	29.4	34.5	44.4 ^{9.5}	51.7 ^{10.3}	58.2 ^{11.5}	61.4 ^{11.4}	68.4 ^{12.2}
Form (composition test).....	28.8	33.0	42.1	54.5	60.7	62.3	67.0

This table is to be read as follows: The median speed of writing in the second grades of the whole system is 33.5 letters per minute. The median rank in the form of the second grade writing is 29.4 and the rank in the form in the composition test is 28.8.

In order to bring out the significance of these results from the system as a whole, they are compared graphically with the average standing in speed and form of the writing of 55 and 56 large cities respectively in Diagrams LII and LIII. In Diagram LII a comparison is made of the speed of the writing and in Diagram LIII of the form. The form of the specimens from the 55 cities was carefully graded by the same man who graded the Grand Rapids papers so that the two records are directly comparable.

It is clear from these diagrams that the system in general stands high in writing. This statement holds without qualification with reference to speed. In all grades but the second, the speed is above the average of the upper half of the 56 cities used as a standard, and in the second grade, it is above the average of the 56 cities. The form is approximately equal to the average of 55 cities in grades four to eight but in the second and third grades it is considerably below the average.

There is a divergence in practice in these grades throughout the country, and Grand Rapids represents one of two contrasted types, in which the standard of form is below, and the speed above, the average. There is rather strong sentiment among

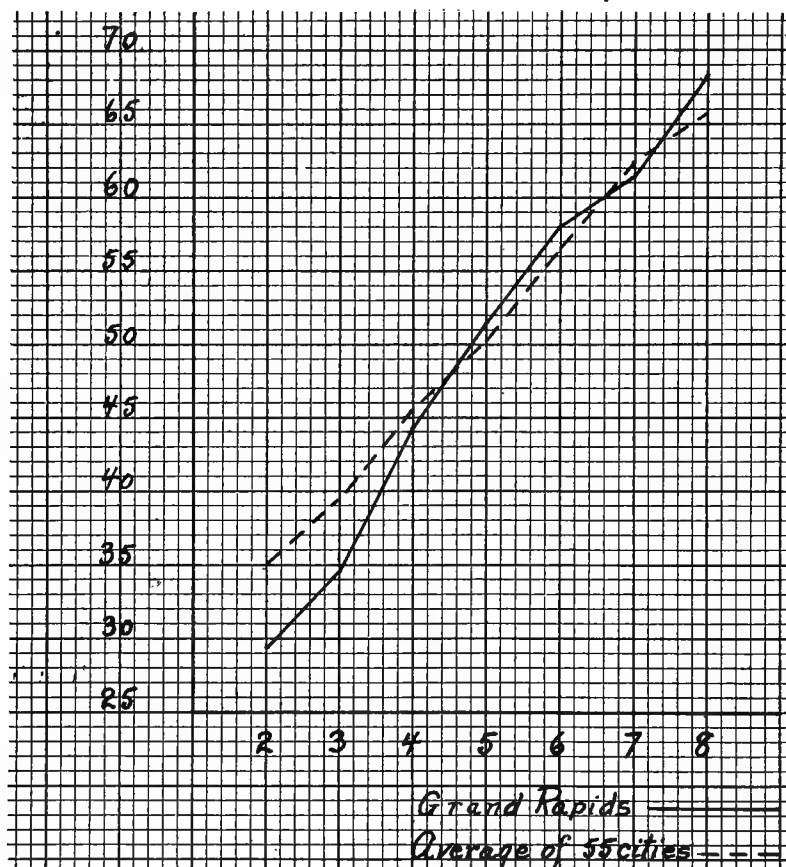


DIAGRAM LIII—Comparison of the form in handwriting in Grand Rapids and in 55 cities.

primary teachers in Grand Rapids and in other systems that the practice represented in Grand Rapids is not so well adapted to the primary grades as is the contrasted practice, in which the child is allowed to write more slowly, and with greater attention to form. This report will not pass judgment on this issue, but does suggest that it would be well to permit controlled experimentation along the line which is represented in other systems for the purpose of testing the alternative policy with reference to the lower grades. That the system of alien supervision does

not readily permit such trial of alternative methods constitutes a difficulty in such supervision.

As has been said, this practice of permitting rather poor

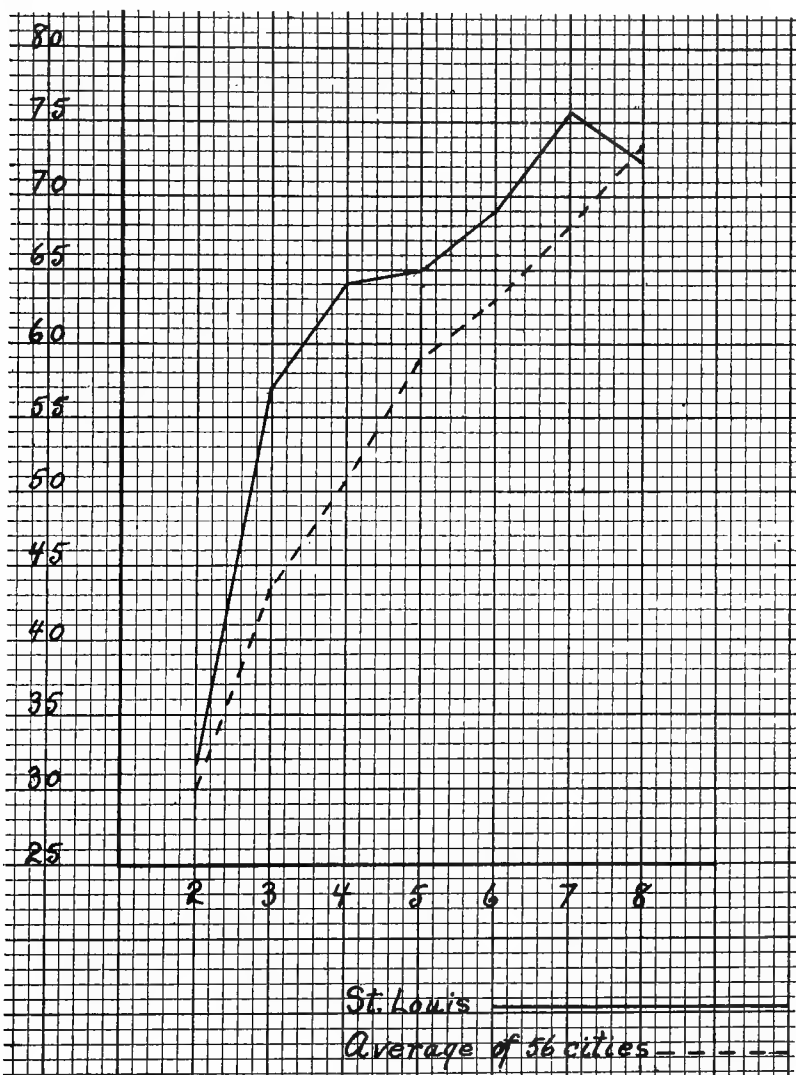


DIAGRAM LIV—Comparison of speed in handwriting in St. Louis and in 56 cities.

form in the primary grades represents a policy which is typical of some systems of teaching, while other systems get better form in the primary grades, and obtain equally good form in the upper grades. The speed in Grand Rapids is superior to the average throughout, but not more so in the lower than the upper grades.

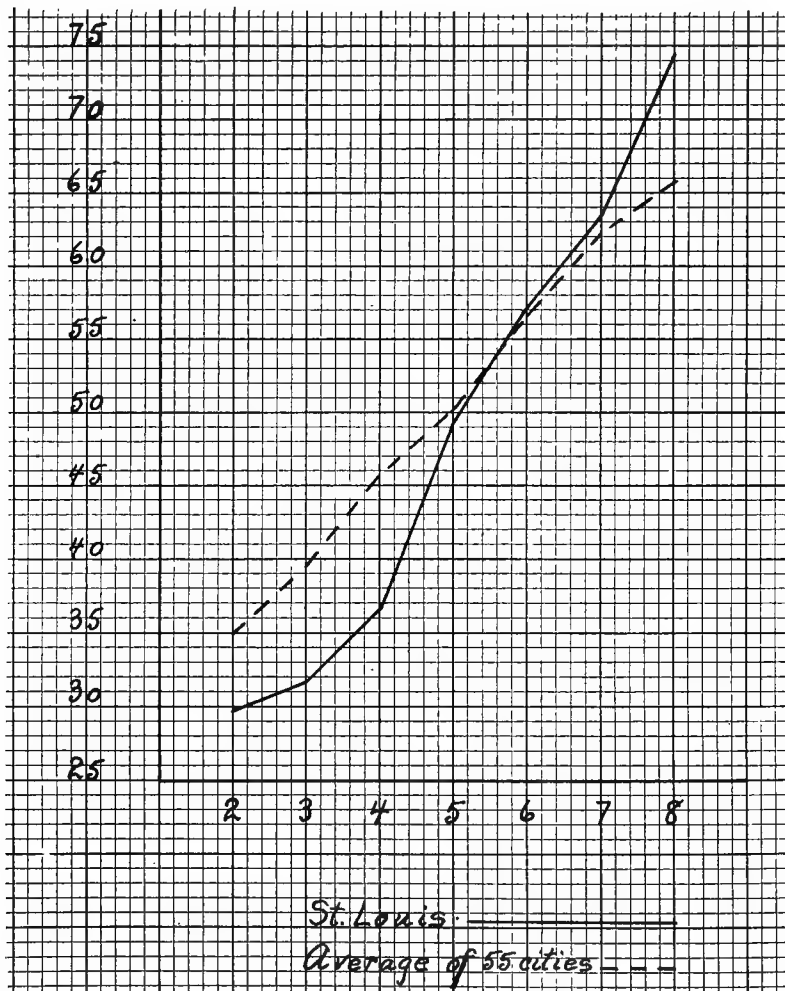


DIAGRAM LV—Comparison of form in handwriting in St. Louis and in 55 Cities.

A more extreme example of the same condition is found in a survey of the writing in St. Louis as shown in Diagrams LIV and LV. In that city the speed in the third and fourth grades is relatively very high and the form correspondingly low. The supervisor and the principals in St. Louis regard the method which has been used in the past in the primary grades as defective, and are at work upon a modification of the methods of teaching for these grades. In particular they recognize finger movement as the type of movement which is adapted to the primary child, and are attempting to develop the proper use of this movement instead of allowing the child to use it in an unsupervised manner, which he will otherwise do. This modification has been made as high as the third grade and its extension to the fourth grade is contemplated. This modification is in process of being made and is apparently too recent to affect the children's writing habits very greatly. To repeat, the condition which is represented by the results in these two systems is contrasted with the general practice, and is strongly in contrast with the practice in some systems, in which the form in the lower grades is as much above the average as it is below in these cities. Such a divergence as this constitutes a strong demand for comparative experiments under the control of supervisory tests, in order to determine which practice is the more advantageous, both for the primary grades themselves and for the school as a whole.

The method of teaching writing now followed in Grand Rapids accomplishes good results, as pointed out above, by the time the pupils reach the upper grades. The suggestions made in the last paragraph could, if desired, be incorporated into the work of the schools without sacrificing any of the virtues of the present system. In order to bring about these changes in the most effective way, however, the problem would have to be taken up in Grand Rapids itself and will have to be dealt with through careful study of the best methods of treating the children in the schools. This is one reason for urging that supervision in penmanship be not given over entirely to a system that is independent of the schools.

A comparison of the results from the composition test and the formal writing test shown in Diagram LVI, indicates that the pupils write as well when they are not engaged in writing drill as when they are. This may be due to the fact that they wrote more slowly in the composition test; but at any rate, it indicates that the quality of writing obtained in the writing period is not an artificial and abstract product. This is a situation which is to be commended.

Table XXVI presents the results of the tests in the indi-

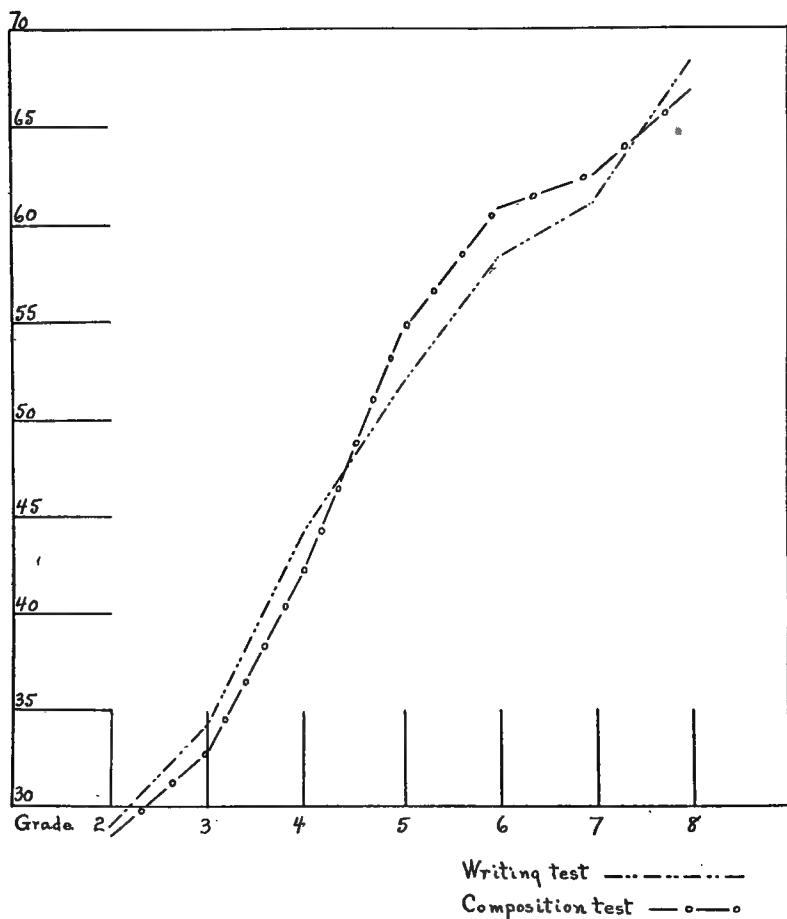


DIAGRAM LVI—Comparison of the rank in the formal writing test and the composition test.

vidual schools. This table should be read as follows: In the Alexander School, the second grade wrote in the formal test with a median speed of 26. In the formal test, the form was graded 34. In the composition test, the form was graded 27. In the third grade, there was a great increase in speed, deterioration in the form in the formal writing test, and slight improvement in the form in the composition test. If the columns are read

TABLE XXVI

Results of the Speed, Formal Writing, and Composition Tests in Each Grade of the Grand Rapids Schools.

SCHOOLS	SECOND GRADE			THIRD GRADE			FOURTH GRADE			FIFTH GRADE			SIXTH GRADE			SEVENTH GRADE			EIGHTH GRADE		
	S	FW	C	S	FW	C	S	FW	C	S	FW	C	S	FW	C	S	FW	C	S	FW	C
Alexander	26	34	27	54	30	29	61	39	38	71	42	46	76	45	45	72	53	58	---	---	---
Buchanan	35	35	31	41	27	26	52	33	27	63	48	46	72	63	67	73	59	62	---	---	---
Coit	28	32	30	44	37	34	59	46	43	63	57	57	66	71	70	80	52	55	92	64	65
Coldbrook	24	23	24	45	30	28	62	44	42	66	42	45	75	49	57	---	---	---	---	---	---
Congress	35	29	28	50	28	29	93	34	37	94	42	45	111	52	55	71	49	50	84	71	73
Diamond	30	45	39	43	42	38	57	46	43	57	59	54	77	60	57	104	69	71	86	76	77
East Leonard	46	27	26	79	47	46	86	63	64	81	59	60	99	58	60	80	71	71	100	70	73
Evangeline	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Finney	27	23	23	36	59	57	51	68	64	56	77	76	---	---	---	---	---	---	---	---	---
Fountain	33	36	35	49	31	30	65	45	43	70	51	55	73	49	53	78	66	68	72	75	75
Franklin	34	33	29	55	39	50	53	57	58	64	52	63	63	63	65	67	74	75	80	82	84
Hall	24	32	33	44	64	62	66	77	74	73	67	66	71	70	66	---	---	---	---	---	---
Henry	43	27	28	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Ionia	34	23	21	52	28	27	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Jefferson	38	28	29	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Lafayette	28	28	27	52	36	34	59	35	33	65	34	36	73	39	39	78	58	58	71	68	66
Lexington	43	32	32	53	37	38	69	39	39	54	51	53	63	66	66	85	58	60	79	66	67
Madison	29	37	35	33	40	38	47	46	45	60	55	56	65	52	53	74	63	65	---	---	---
Michigan	38	40	41	41	34	34	61	43	41	63	47	50	66	55	55	77	63	63	---	---	---
Oakdale	38	32	32	54	31	30	68	49	49	66	65	65	80	60	62	81	63	65	83	68	73
Palmer	23	29	27	57	29	27	68	35	34	75	35	39	71	43	43	68	49	51	---	---	---
Pine	40	29	28	57	29	27	59	61	60	74	59	59	69	69	71	80	71	74	88	77	81
Plainfield	33	36	33	38	35	27	58	38	38	61	55	56	66	55	55	80	73	76	---	---	---
Sheldon	44	27	28	53	32	32	56	52	47	63	54	50	82	57	59	92	53	50	---	---	---
Sibley	29	30	30	50	38	37	59	45	38	65	54	55	108	58	59	103	50	50	111	63	63
Sigsbee	22	29	25	49	38	38	64	45	42	71	50	48	108	58	59	103	50	50	93	63	62
South Division	32	26	27	47	28	28	55	33	33	68	42	41	75	58	62	81	67	68	---	---	---
Stocking	33	25	25	64	33	32	58	39	35	57	59	60	---	---	---	---	---	---	---	---	---
Straight	33	32	29	50	31	31	71	37	35	63	57	59	83	55	58	87	60	62	92	62	63
Turner	36	31	29	53	39	38	60	39	38	59	57	57	67	65	64	72	61	61	---	---	---
Walker	36	36	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
West Leonard	39	37	35	57	40	42	58	51	45	69	49	50	---	---	---	---	---	---	---	---	---
Widdcomb	34	26	25	62	30	30	83	36	33	80	38	37	80	50	52	77	40	41	71	69	68
Junior High	---	---	---	---	---	---	---	---	---	---	---	---	62	65	61	74	62	61	80	48	55
South High	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	87	55	55
Union	---	---	---	39	39	38	49	44	43	74	47	45	83	58	58	95	71	68	83	69	65

vertically, various schools can be compared with each other. This table is the basis of selected Diagrams in plate LVIII.

Of equal value with the comparison of the Grand Rapids schools with other school systems is the internal comparisons of schools within the system. To facilitate such comparisons, Diagram LVII has been prepared. This represents by a single graph the improvement from grade to grade in both speed and

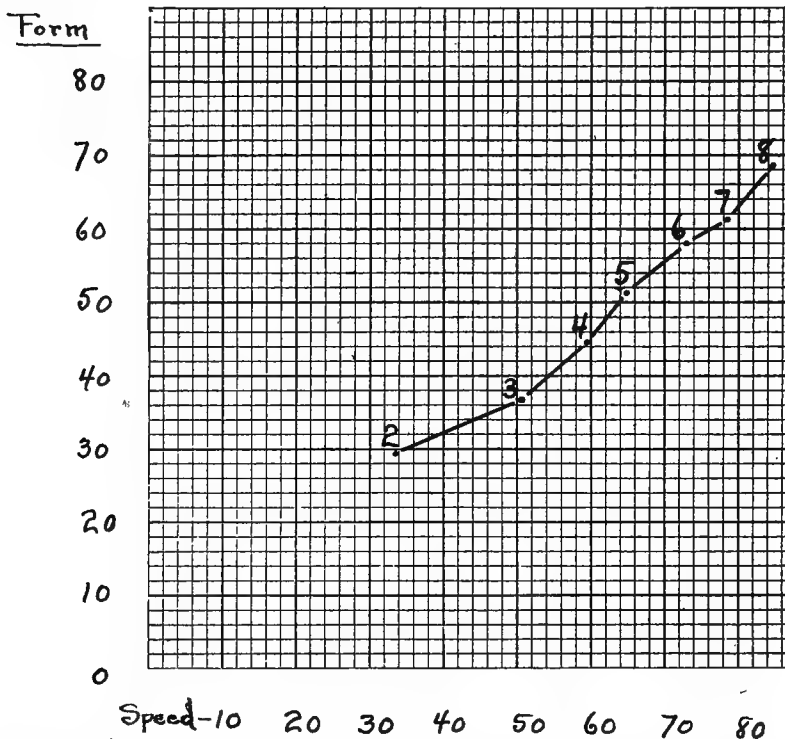


DIAGRAM LVII—Median speed and form in handwriting for each grade of the Grand Rapids Schools. Form on vertical scale speed on horizontal scale.

form. The position of a point, representing a grade, indicates by its horizontal position the speed, and by its vertical position the form of writing in that grade. The general direction of the line which connects gradepoint with gradepoint is forward in both dimensions for every grade.

It will be noted, however, that the progress between the

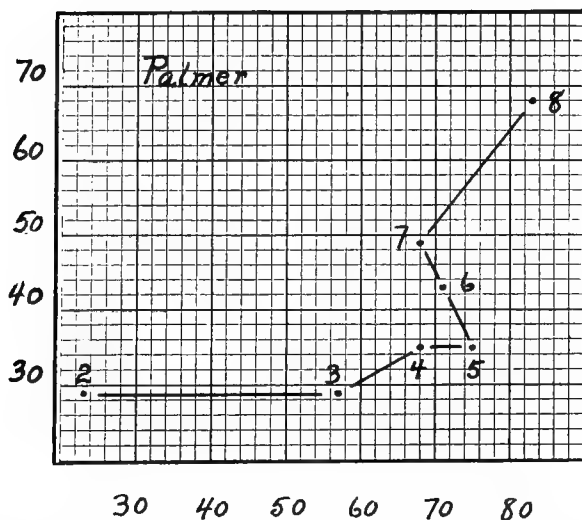
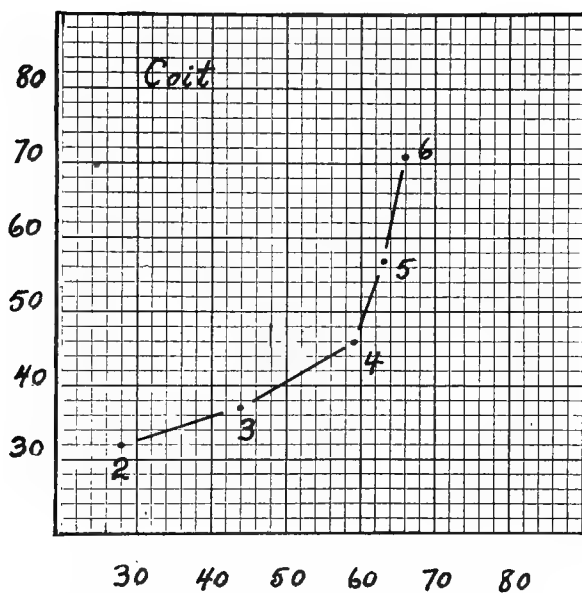


DIAGRAM LVIII-A—Median speed and form in handwriting for each grade of 6 selected schools. Form on vertical scale, speed on horizontal scale.

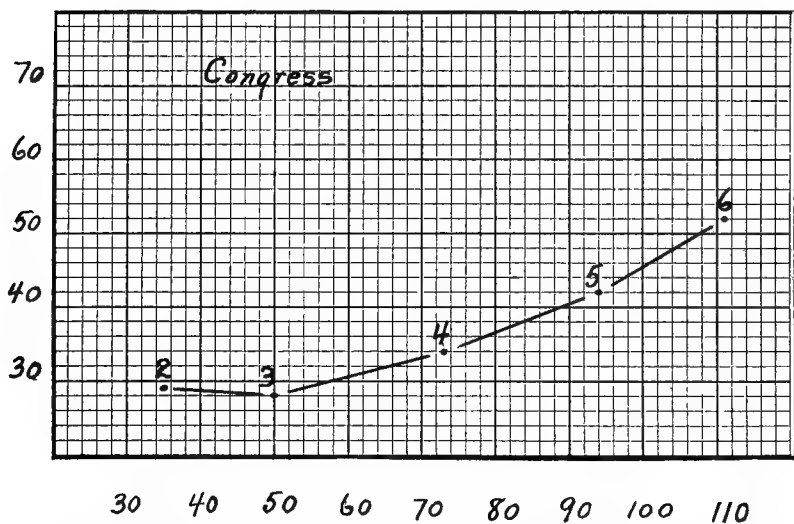
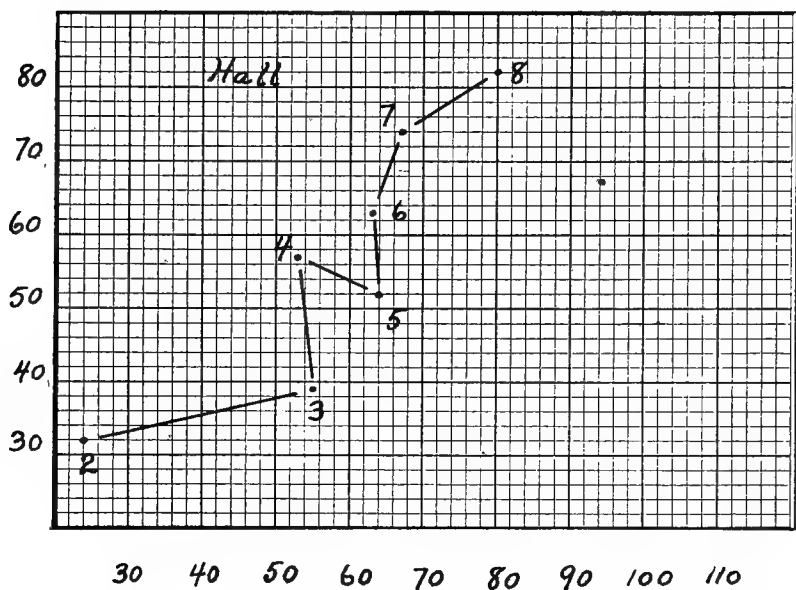


DIAGRAM LVIII-B—Median speed and form in handwriting for each grade of 6 selected schools. Form on vertical scale, speed on horizontal scale.

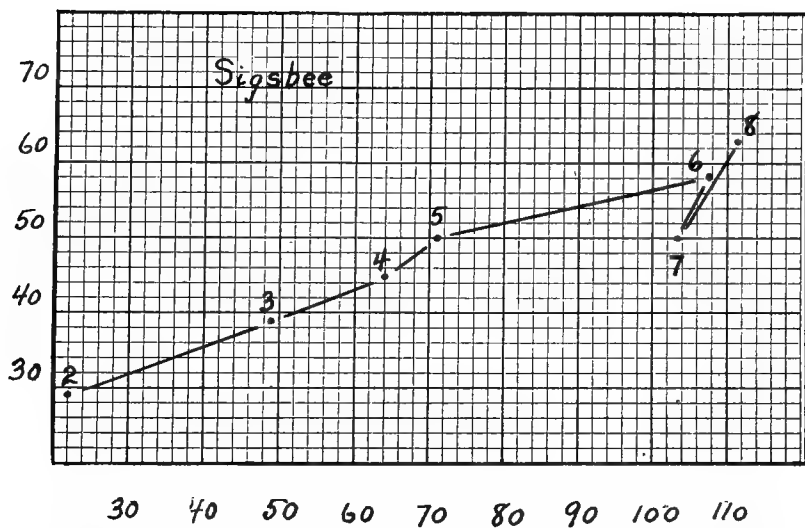
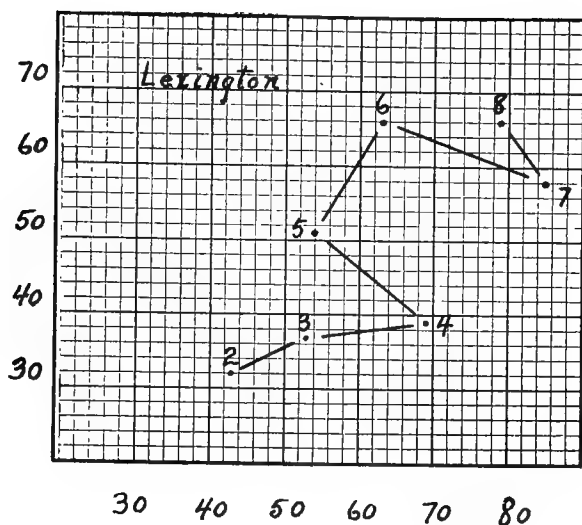


DIAGRAM LVIII-C—Median speed and form in handwriting for each grade of 6 selected schools. Form on vertical scale, speed on horizontal scale.

second and third grades is more pronounced in the direction of speed than in the direction of form.

Diagrams for individual schools can be constructed on the same plan and make it possible for principals in their buildings to study the progress exhibited from grade to grade. Such progress is shown for several schools in Diagram LVIII.

A few cases illustrating types of progress may be discussed briefly. Congress and Sigsbee show great emphasis on speed. Indeed Sigsbee gets tangled up in the upper grades because of such great emphasis on speed in the sixth grade, and low emphasis upon form in the seventh. Coit and Hall emphasize form, the latter somewhat irregularly. Palmer shows a radical change in emphasis in the upper grades. Lexington shows striking irregularities.

Other schools can readily construct diagrams on this pattern, from Table XXVI, which gives the figures for all schools. The school diagrams can also be brought into direct comparison with the standards determined in 56 cities. Diagrams LIX and LX show how this comparison can be made for the Widdicomb School which is high in speed and low in form, and the Pine School which is better than the average in speed, low in form in the second and third grades, but very high in the grades above the third.

Special comment may be made on the comparison between the Hall School, represented in Diagram LXI, and the Widdicomb School in Diagram LIX. In the Hall School, the problem of supervision is met in a special manner throughout the departmentalizing of writing in connection with music. These two subjects are taught by one person throughout the school. In the Widdicomb School there appears to be a minimum of supervision due to the fact that the principal follows the policy of allowing the individual teachers large latitude. The contrast between the results in the two schools is striking and is a reflection of the policies of much and little supervision. In the Hall School there is a fair balance between speed and form, with the exception of the somewhat excessive development of form in the upper grades. In the Widdicomb School form is sacrificed to speed. In the Hall School the progress is consistent with only slight exceptions. In the Widdicomb School the speed decreases steadily from the fourth to the seventh grades and the form is highly erratic at the sixth grade.

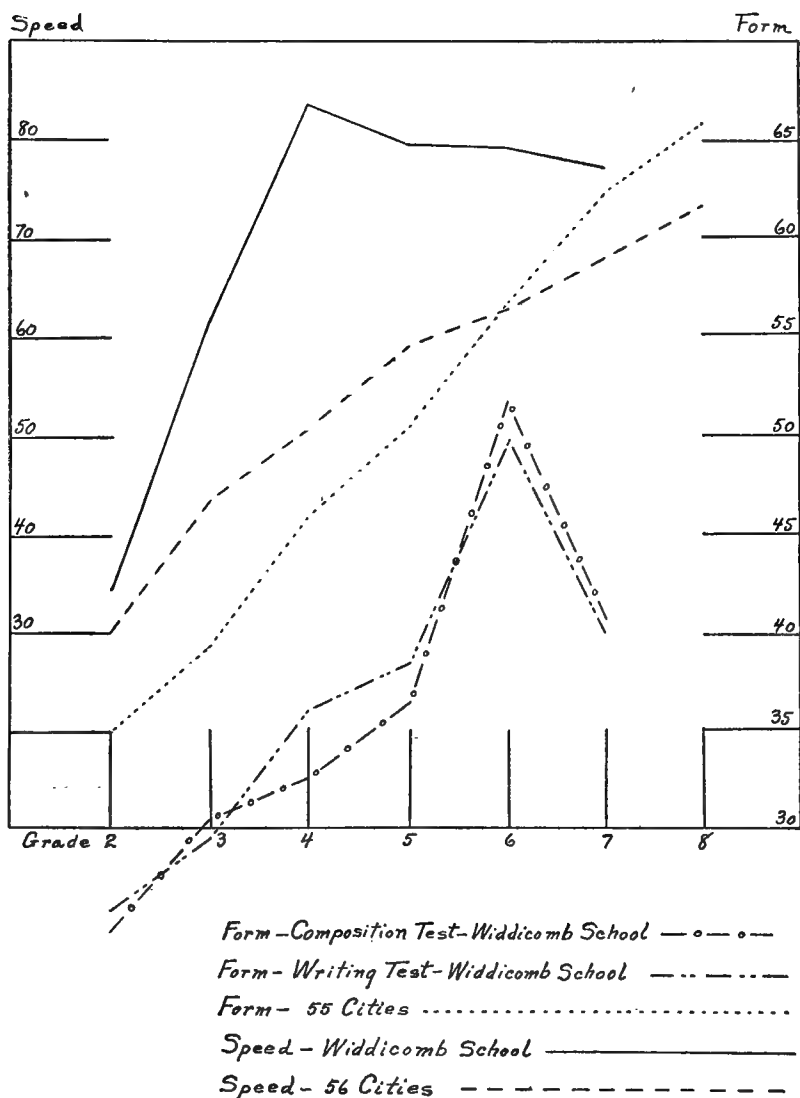


DIAGRAM LIX—Comparison of speed and form in handwriting at Widdicomb School with speed and form in 56 cities.

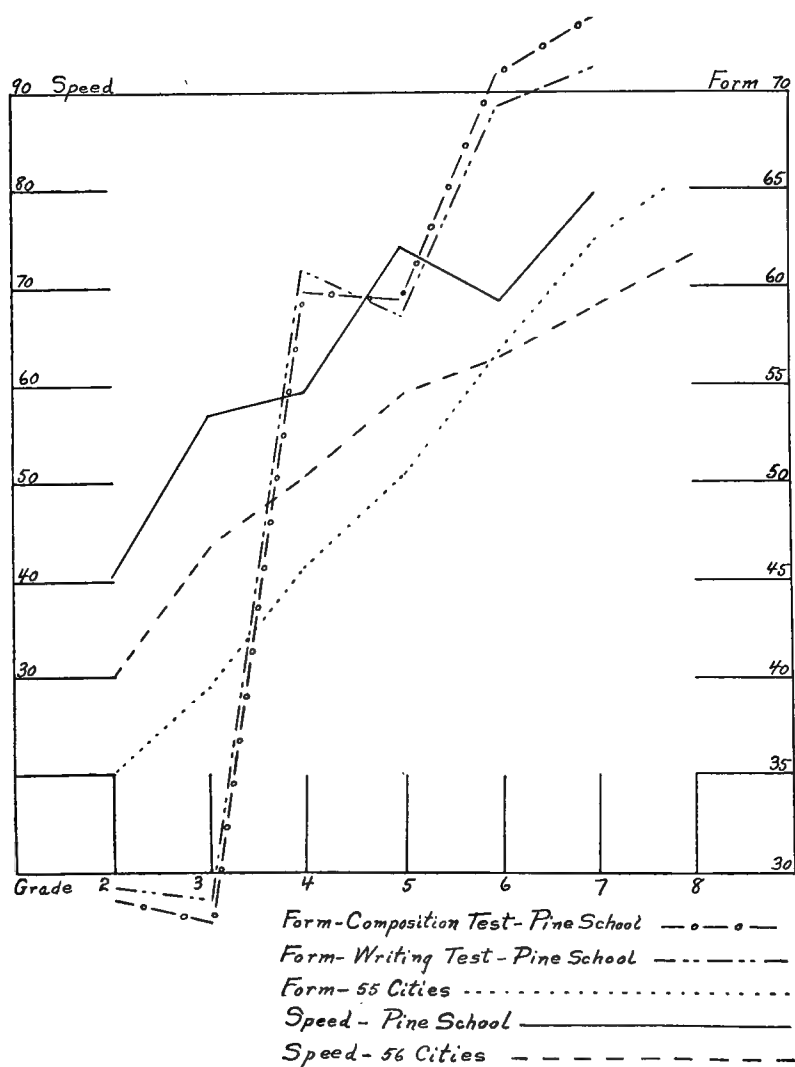


DIAGRAM LX—Comparison of speed and form in handwriting at Pine School with speed and form in 56 cities.

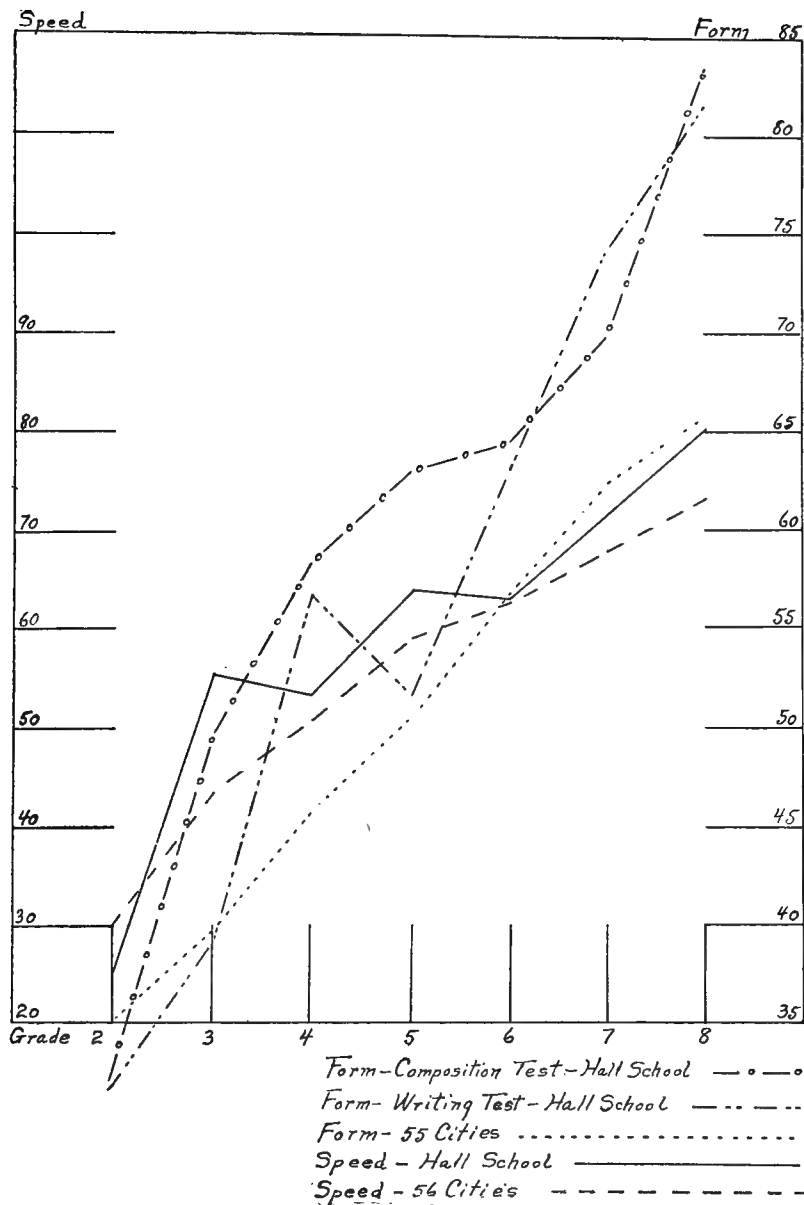


DIAGRAM LXI—Comparison of speed and form in handwriting at Hall School with speed and form in 56 cities.

The lack of uniformity in practice represented by the results shown in the foregoing diagrams indicates that there is need for improvement in the supervision of the writing of the schools. The supervisory agency should be the instrument to help the individual schools and grades study their records in comparison with those of the other schools in the system through some such tests as those which were used in this survey. It is not the intention of this report to insist that this can be done only through a change in the present method of supervision. The results of the present system are in the main excellent. But the defects which have been pointed out are real and important, and they are defects which are particularly apt to occur when the supervisory agency is not in close touch with the system.

The results from the three junior high schools are significant. The teaching of writing in these schools is somewhat interfered with by the fact that the pupils are given here a more varied type of work than those in the elementary schools. In the case of the South High School, this has, up to the present time, interfered with any systematic writing drills, and this condition has the very obvious effect of lowering the efficiency of the writing in respect to form. In the Junior High School, writing lessons are given and the results are as good as in the system as a whole. The same thing is true of the work in the Union High School. It appears from these facts that the pupils have not had sufficient training in the first six grades to make it advisable to omit drill in handwriting when they enter the junior high school.

In many of the rooms in which the writing was observed, the desks were not adapted in height to the size of the pupils as well as they should have been. In a system in which adjustable desks are not used, this can be accomplished by having enough desks of different sizes in the same room to accommodate practically all the pupils in the room.

The lighting in some of the older buildings cannot be made as good as it should be without radical change in the buildings. In a number of the rooms observed, however, the lighting is unnecessarily bad because the desks face in such a direction that the windows are to the right of the children. This bad condition should be remedied by placing the teacher's desk at the opposite end of the room and reversing the children's desks. This defect was observed for example in the following rooms: Hall School, grades 7-2, 7-1, and grades 5-2, 5-1; Widdicomb School, grades 3 and 6-1.

CHAPTER VIII

MUSIC

J. Beach Cragun

Inasmuch as the surveys of music in St. Louis, Mo., and Grand Rapids, Mich., are the first to be made, no well-grounded scales of measurement have been developed. These two surveys, then, and the results of a survey of a single Chicago school are the only three in which the same scales have been tried out. Comparison of these with other systems, then, is not possible, except through personal estimate.

The formal side of any instruction is the only one which lends itself to the process of measurement. The formal aspect of music is represented in sight reading, and ability to read at sight may be subdivided into ability to comprehend and reproduce rhythms and the various diatonic and chromatic intervals.

This formal phase of music instruction—sight reading—is accurately estimated. Other phases are estimated in terms of personal observation and opinion.

Recreational Aspect

One of the chief values of instruction in music is here represented. The music teacher, as no other, must secure and hold the willing and hearty co-operation of the pupils. He may more and more organize his work in the recreational direction for the purpose of securing this co-operation, or he may organize too far in the other direction for the purpose of raising the standards expressed in his course of study. Neglect of either is but little less disastrous than an ill-balanced recognition of both.

The elementary schools of Grand Rapids exhibit a most excellent balance between the recreational and the educational. Practically every child sings, and the enjoyment of their singing was evident, sincere, and very nearly universal. I believe this to be due, largely, to the exceptional success of the system in the early elimination of monotones. It is surely evident that the

small amount of class time given over individually to the backward children is well spent. It not only secures the elimination of nearly all monotones, but also, in the Grand Rapids system, does this very early in the grades. Then, too, with the early development of ability in the handling of the voice on the part of all members, the class as a whole springs forward in a development otherwise impossible. All this is very evident in these schools. The Grand Rapids system develops the musical ability of each child with remarkable uniformity.

And this is the thing in which we are most interested. So many music systems do little for the less musical child. Show me the results of the poorest third of a music class and I can estimate the upper groups, as well as the care with which the work of the preceding years was done.

The result of this procedure in Grand Rapids is that the amount of individual variation within a given group is reduced. One of the strongest proofs of the fact that music and its presentation are not organized as are many other subjects is to be found in the customary and significant, tremendous individual variations within given groups. Hence the comparative uniformity of development in musical ability exhibited in Grand Rapids is all the more noteworthy.

The Grand Rapids high schools do not require music, and their choral and other musical organizations are all on a voluntary membership basis. They are not, then, to be judged as compared with work required of *all* pupils, but will be taken up under a later heading.

In summary, the work observed in Grand Rapids certainly meets the requirements of good work in music so far as the recreational element is concerned. And this is due in no small degree to the noteworthy success of the system in its early elimination of monotones—in its early reduction of the extent of individual differences. Practically all the children sing and enjoy their singing—and this is of first importance.

The Educational Aspect

The educational aspect of any instruction may be pointed out in the development of certain habits, or abilities. Music classes—as all others—should develop individual attention. A cultural type of enjoyment, a refined “leisure-time occupation”, is also to be created through pleasant experience with the best of carefully selected music. All these, and also the development of the appreciation of the rendition of other musicians, are peculiarly fostered through the development of habits of good tone quality and interpretation in singing. Children trained along

the lines above mentioned are well equipped but they need one thing more—the ability readily to take up new and more advanced material after leaving the school which has developed in them the desire so to do. Hence the necessity, from but one standpoint, for thorough training in sight reading.

The problem of individual concentration, in so far as it is peculiar to the music class, does not frequently present itself below the eighth grade. A single exception was met (in one of the seventh grades) in which it existed in any widespread form. Otherwise it was found only here and there, and then in the case of pupils musically unable, not representative of the system. For instance, I examined eight-one pupils in the first half of the eighth grade and seventy-two in the second half at the Union School. Of these, eleven pupils did not comprehend a single one of the thirty-seven rhythms given. After seeing the work of the lower grades in Grand Rapids I can not believe that these eleven children grew up in the system.

Nearly all the work in music, in summary, exhibited that personal concentration from each members of the class without which no musical organization will do its best work, or will make its most rapid progress. Nor is this the individual application of members of a class in mathematics, or literature, or history—it is a concentration which is individual yet social, with initiative subject to the will of another, a concentration coupled with recognition of the individual as but a part of a larger whole. From its very nature a high type of group work in music would seem to demand a greater amount of concentration, if anything, than some of the other subjects. And on the whole this demand is met in this system.

The second phase of the educational aspect was expressed above in these words: "A cultural type of enjoyment, a refined 'leisure-time occupation' is to be created through pleasant experience with the best carefully selected music." This opportunity is afforded the children of Grand Rapids for they have not only vocal, but also instrumental training. Reading as well as they do, I believe they could be given a great deal more material to advantage, but this will be taken up under the discussion of sight reading. The instrumental work will be brought out under the heading of special organizations.

So far, we have had in mind that "best of carefully selected music" which the children themselves produce. Yet that vocal or instrumental music which is usable in the school is but a portion of the whole field of vocal or instrumental literature, nor do these two exhaust the library of the musical compositions that are of essential worth. All branches of the musical art should be brought before the children in the public schools.

Perhaps this could not be done, even in an elementary fashion in the grades alone. Let the work be continued in the high schools or junior high schools, for if the cultural and other benefits of music study are as universal as commonly believed why not continue systematic music instruction into the upper school?

The use of victrolas, player pianos, etc., has by no means come to its own. They might well be systematically used to the end of rounding out, of completing, the acquaintance of the child with some of the best in all branches or at least the chief branches of the musical art.

The third phase of the educational aspect goes behind this consideration of the materials used and considers the way in which they are used. In this I mean to refer especially to tone quality and interpretation.

The tone quality is good, in several schools superior, and of remarkably even character throughout. But a single group doing decidedly inferior tone work was found and this may have been shown at a disadvantage. Mr. Beattie is fortunate in having a system not so large as to render it impossible to keep in intimate touch with the various units. And in the above-mentioned and remarkably uniform good tone quality is evidenced this characteristic outcome of careful and competent supervision.

The matter of good interpretation, too, is carefully handled though the results are not so exceptionally noteworthy as those in the matter of tone quality mentioned above. Artistic interpretation of children's songs is a matter in which the ordinary teacher and usually the average supervisor needs capable assistance. The interpretative work visited was good and more than meets the general requirements of the work. It is only to be hoped that Mr. Beattie will be able to bring this to the level of the superior type of result mentioned elsewhere.

The fourth and last phase of the educational aspect takes up the matter of sight reading. While the value of this ability is self-apparent it is not a matter of first importance, nor is it made so in these schools. Sight reading rests on the ability of the child to interpret or duplicate various grades of rhythms and intervals. Scales were made out in each of these and tests given the children in such a way that each child in each test—and very few took both—could make a possible one hundred points. Three thousand seven hundred and twelve children in St. Louis, Grand Rapids, and the University Elementary and High Schools of the University of Chicago were given the tests. A tabulation of these results established certain medians, or representative

scores. These together with the records made by the 1587 Grand Rapids children given the tests appear below:

TABLE XXVII

Median scores for Sight Reading in Music in Grades 5-1 to 8-2 Inclusive for 3712 Children in St. Louis, Grand Rapids, and the University Elementary and High Schools of the University of Chicago.

Grade.....	V-1	V-2	VI-1	VI-2	VII-1	VII-2	VIII-1	VIII-2
INTERVALS								
Lowest Score	0	0	0	0	0	0	0	0
Median Score } 50% of group	5	9	8	10	11	9	9	14
Score	9	16	16	18	17	20	18	22
Score	15	27	24	28	27	31	30	32
Highest Score	34	82	93	69	54	96	88	66

RHYTHM								
Lowest Score	1	0	0	0	0	0	0	0
Median Score } 50% of group	5	10	10	10	8	6	10	10
Score	11	17	16	17	17	13	17	19
Score	16	26	24	27	27	24	26	27
Highest Score	25	67	41	67	78	61	57	44

TABLE XXVIII

Median Scores for Sight Reading in Music in Grades 5-1 to 8-2 inclusive for 1,587 children in the Grand Rapids Schools.

Grade.....	V-1	V-2	VI-1	VI-2	VII-1	VII-2	VIII-1	VIII-2
INTERVALS								
Lowest Score	0	0	0	0	0	0	0	0
Score } 50% of group	4	9	7	12	12	9	8	11
Median	11	16	14	19	17	18	19	21
Score	15	29	25	30	27	31	29	26
Highest Score	28	82	64	69	50	96	48	54

RHYTHM								
Lowest Score	1	0	0	0	0	0	0	0
Median Score } 50% of group	5	10	6	8	6	5	10	7
Score	11	15	13	13	11	12	17	18
Score	16	22	17	21	18	20	24	28
Highest Score	25	42	33	40	46	45	46	47

The grades are grouped by semesters, or half years, and the number given is the median or most representative record made in a given group. A comparison of the two tables will show that the pupils examined are normal in their ability in intervals but below normal in their ability in rhythm.

The following diagram based on the figures given above makes clear the situation.

An analysis of the Grand Rapids results shows that while the rhythm curve is below average the interval curve would be

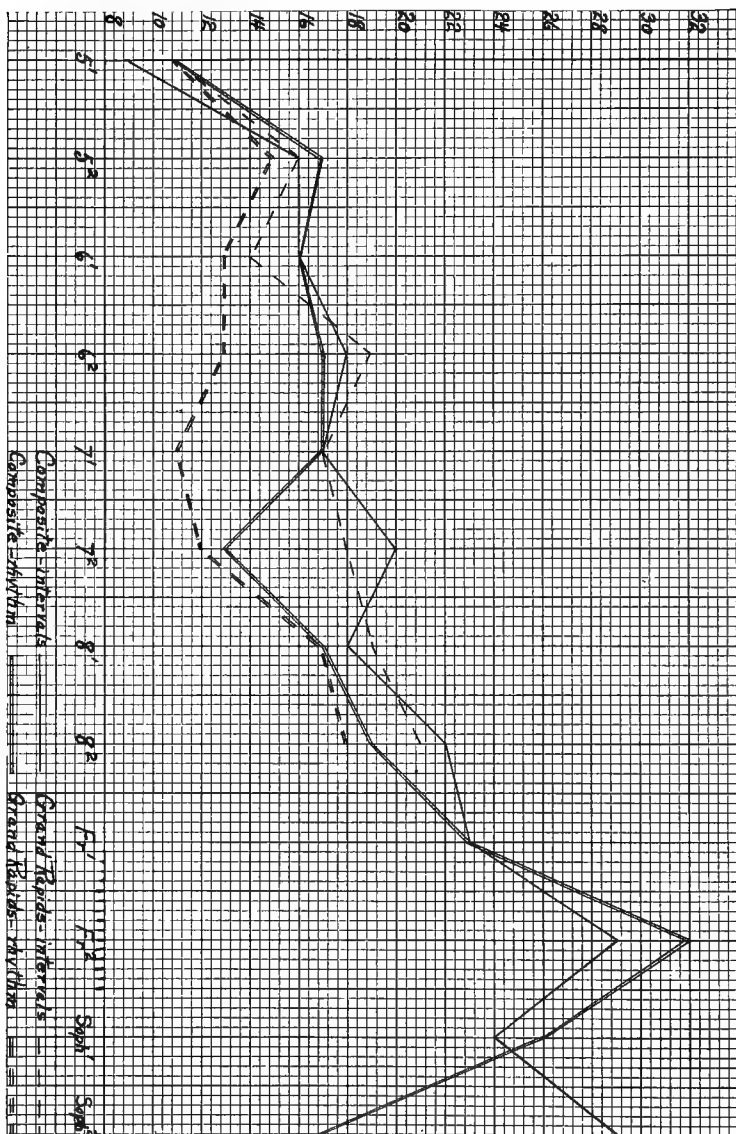


DIAGRAM LXII—Median scores for sight reading in music for 1587 children in Grand Rapids and for 3712 children in St. Louis, Grand Rapids and the School of Education, Chicago.

considerably above average were it not for the results coming from Turner School. This is shown in the following table of medians.

TABLE XXIX

Comparison of median scores in intervals for the Turner School of Grand Rapids, the composite group of schools and the best score in Grand Rapids.

Grade.....	V-1	V-2	VI-1	VI-2	VII-1	VII-2	VIII-1	VIII-2
Turner Score	4	9	....	17	14	9	....	....
Composite Score (St. Louis, Chicago and Grand Rapids)....	9	16	16	18	17	20	18	22
Best Grand Rapids Score	15*	25**	17*	30*	18*	27*	25*	22*

* Sigsbee School.

** Lafayette School.

No other school turned in results so consistently below average as did the Turner School. Its cause I cannot point out but it is surely evident that here is a weak spot which needs strengthening.

The sight reading, then, seems for the most part to be made up of a little above the average strength in intervals, coupled with weakness in the handling of rhythms. Yet I saw certain classes do rather remarkable work in sight reading from their books, though very few classes were tried out in this manner. The contradiction of figures and observation may in part be explained as follows.

The children do not sing a great many songs, but they sing all these well. I had constantly the impression that I could call on a class for any song they had had all year, and find them able to sing it from memory. There is great value in redoing what has been previously done in careful manner. But the development of ability to read music calls for two steps: (1) slow careful preliminary steps, followed or interspersed between (2) practice in actual rapid reading in which there is not much stop or drill on hard places or mistakes. I believe Mr. Beattie could give his schools throughout more material, to be used in the latter fashion, and to great advantage. I believe its absence to be the cause of the marks made by the children in the tests.

Special Organizations

The schools have rather more and larger special organizations than the average. This is due to the vigor with which instrumental work is pushed and to the absence of required music in high school. All are doing good work apparently but of es-

pecial worth is the orchestra at Central High School. Few high schools have better.

Conclusion

The music work in the schools of Grand Rapids meets many if not all the requirements of good work. Much of the work is done in distinctly superior manner. The granting of high-school credits for outside music work has been in operation for some time, and has proved very successful. Mr. Beattie would do well to organize in writing his methods of granting credit for the benefit of the many other cities about to grant similar credit. And this is no light task, for it involves the making out of approved courses of study, as well as the writing out of the various details of the operation of the scheme. Such contributions, based on the experience of successful operation, are necessary to the raising of the cause of public-school music to a science.

CHAPTER IX

INSTRUCTION IN THE ELEMENTARY SCHOOLS

John F. Bobbitt

An aggregate of about two weeks was spent by the writer in observation of the work of the elementary grades and in conferences with teachers, principals, and supervisors, concerning the work of those grades. For this purpose about twenty of the larger schools were visited. The time was insufficient for an exhaustive examination into the work of any single building. The city uses, however, a uniform course of study, uniform series of textbooks in most subjects, and the work of the various buildings is well supervised from the central administrative offices. The result is a very considerable uniformity of practice in the majority of the subjects, the work differing from room to room more in quality of the teaching than in course of study or intent of the work. It is felt, therefore, that the observations of portions of the work in all the grades in many buildings has resulted in a fair conception of what the city is attempting to do, what it is actually doing, and here and there as to certain things that might be done by way of improving the programs or the practices in the work.

In general, however, it must first be said that the professional school people of the city are fully alive to the nature of current educational problems; that they have been and are industriously and conscientiously grappling with the problems; and that, like progressive professional people throughout the country, as they adapt and adjust the work year after year, are solving the various problems. The best ideas already to be found in the work of the city in connection with the teaching of each of the subjects cover about everything that we can here propose. Our primary duty turns out to be largely the agreeable one of choosing ideas and proposals already advanced by the

most thoughtful and progressive teachers and supervisors of the city, and of reenforcing some of the most important of these with recommendations here and there.

Occasionally we shall criticize. And we shall do this with the greater good-will because of the fact that on the whole the work observed was of commendable character. In many respects it falls far short of the character of the work that will in all probability be found in Grand Rapids twenty years hence. But, on the other hand, it is now far in advance of the character of work found in the city twenty years ago. As we point out shortcomings, therefore, it is not in any spirit of adverse fault-finding criticism. We are simply pointing to possibilities of further improvement. We are simply attempting to reenforce the arguments and efforts of those now working within the system who are attempting to secure these very same improvements, and who will secure them within the next few years because their efforts are rightly directed.

I. READING AND LITERATURE

Excepting only the personal association, reading is certainly the most important educational exercise in our public schools. We are thinking here, in this discussion, not so much of training in the art of reading itself as of the humanistic and other training that results from the use of the art of reading. We wish in no degree to minimize the importance of training in the art itself, since this is a primordial prerequisite to the use of the art of reading for education on all of its later and higher levels. We wish to give due emphasis to both reading for the sake of the mastery of the art, and reading for the sake of education, intellectual, social, moral, occupational, political, humanitarian.

It happens, however, that there has been a rather unbalanced emphasis in the field. We have given large attention to the elaboration of methods of teaching the simple art of reading. We have placed insufficient emphasis and have given insufficient time and thought to the use of reading for the purpose of developing and expanding the personality in all the desirable ways in which reading may be made to serve as a means. We have not over emphasized the mechanics of reading; we have underemphasized the educational results that might accrue from a well-studied use of available reading. We have not elaborated our methods of teaching the mechanics of reading too greatly; but in elaborating them in partial isolation from the training needed for later and higher purposes the methods have tended to be artificial and beyond the primary grades relatively inefficient even for the purpose of teaching the mechanics of reading.

Neither purpose is well taken care of unless a proper emphasis is given to the other; and unless both are developed in conjunction.

This general criticism of a situation prevalent throughout the cities of the country is mentioned because it represents the situation in Grand Rapids as well. The writer is glad to state, however, that after having examined into the reading situation in quite a number of cities in connection with the work of various school surveys, he has yet met with no city that is so far along the road toward an efficient and balanced program of training in and through reading as the city of Grand Rapids. As we point to further possibilities of progress it is done with the consciousness that already great progress in the direction of our recommendations has been made; and that the leaders of progress in the city are already fully conscious of the things that ought to be done; and that the things are already being done about as rapidly as conditions will permit.

The Primary Reading

The efforts of the primary grades must necessarily be devoted largely to mastery of the art of reading. The city has adopted and in general is efficiently using a good standardized system of teaching the little people how to read during the first few weeks of their presence in the first primary grade. That the system employed is on the whole a good one is proven by the fact that the children do learn to read within a comparatively short time. The system in itself is, however, rather mechanical and lends itself to abuse on the part of teachers who lack initiative and resourcefulness in the use of materials outside of those presented by the "system".

At this stage of the learning a large amount of mechanical exercises is indispensable. The teacher's problem is to make them as varied and interesting as possible; and to keep the drill, even though large, incidental to the live interests in the stories themselves that are told and read. Even in this early stage of reading, it is the thought, the story, that needs to be the primary thing in the consciousness of the children with the language, the vocabulary, the word-recognition, etc., but modes of expressing the story which occupies the center of consciousness.

The mechanical basic system now used in the introductory work is distinctly lacking within itself in the story element. A good teacher can develop much interest through the learning and the repetition in various ways of the little basic rhymes, and can keep the interest thus developed warm long enough to cover the

mechanical and relatively meaningless practice exercises. The good teacher, however, finds it necessary also to supplement with stories and with the reading prompted by the story interest. While both stories and the little jingles now used may both be employed as bases for practice exercises, the story is generally better for the purpose.

In conferences with teachers the desire was frequently expressed for a basic reading system that was less mechanical than the present one, and which employed the story element in larger measure. These teachers and principals have already discerned the need. Taking the work as a whole through the city, it seems clear that the story element should be larger so as better to serve as a basis for the necessarily rather voluminous and varied mechanical drill. The reading should not grow out of this drill as is too often the case; but the drill should grow out of the reading. A composite method using elements of the one used at present, and using elements of other methods, based in the beginning upon the reading furnished by books from two or three reading series, should probably be devised, by way of taking the next step in the natural evolution of methods within the city.

After the introductory work is covered, the best work in the city that was met with represents a superior type of work. In the best schools one finds the children covering during the first year, six, eight, or ten primers and first readers of varied types and subject-matter. Certain cases, however, were found where the class is covering during this entire year only three or four readers and primers. This is altogether insufficient. In such case the class has been too long in getting under way; and where work is slow, mechanical, and impoverished in the early months of the year, the condition of affairs is likely to continue to the end.

The city has been reasonably generous in supplying needed reading material in sets large enough for class use. There is an average of about ten sets of supplementary books for each first grade through the city. These have been chosen, however, in a great variety of ways. The assortment at certain buildings, therefore, is very much better than that to be found at other buildings. Certain of the buildings are not now using all of the material with which they are supplied. Other buildings are using about all that they have, and could use more if it were available.

One teacher says: "Every Friday afternoon a different child is chosen to read a story to the room, the child having had opportunity for a previous reading and study of the story." Where rooms are generously supplied with a great variety of

single library copies of books adapted to this grade, the method is an excellent one and serves various purposes. The child who must choose his own story will often read through a large quantity of material by way of finding the story that he wants to read to the class. This in itself is excellent, and in the oral reading he has a real audience, and his primary effort is to make them understand the story. The plan is thus good for both preparatory and oral reading. While doubtless now used in many schools of the city, it is one that can be recommended for all and for more frequent use than merely once a week.

The introductory work of mastering the simple mechanics of reading covers the first two or three years. The system begun in the first grade should probably be continued in an expanded fashion through the second. For this reason the supervisor of the first-grade work should usually also supervise that of the second grade.

One second grade visited has read during the year seventeen sets of books already, with time enough to read three more sets before the end of the year, making twenty in all. This represents what is possible in most schools, and what is desirable in all. In another second-grade class in a neighboring district with not dissimilar population, the corresponding second-grade class has read less than five books. This latter type of work represents a paucity of intellectual nourishment, and at the same time a deficiency in that reading practice on the side of its mechanics which is necessary for speed, facility, good understanding, and good habits of reading. Since there is an average of ten or twelve sets of supplementary readers for the second grade in the buildings of the city, the facilities are already supplied for a larger amount of reading in the second grade than seems now to be the average of practice. Both averages need to be raised. While there is much reading material on hand, there should be even more; and while much is now being covered in the school of average accomplishment, much more could and should be covered.

The Reading of Intermediate and Grammar Grades

The work in reading is laid out in the course of study in such a way as to emphasize an intensive study of selections presented in the reading textbooks. The textbook series used from the fifth grade on to the end of the eighth is of such a degree of difficulty, and the mode of treatment of the various lessons is so elaborated and systematized within the text itself that one finds here another influence tending to emphasize the intensive study of the difficult and often inappropriate selections. As a result it

is quite clear that the consciously directed reading work of the grammar grades,—this leaves out of the account for the moment the library reading,—is distinctly inferior for the purposes to that of the primary grades. One finds second and third-year classes reading a dozen supplementary sets of books. One does not, however, find the eighth-grade classes reading a dozen sets of supplementary reading books. They ought to read more, not less. If it is objected that the older classes have many things to do because they are carrying many subjects, while the earlier classes have fewer things to do, we must say that the range of things to which attention is given is really much the same in the lower and in the upper grades. Simply, the matters are taken care of in fewer classes in the earlier grades, and are differentiated into more specialized subjects in the later grades. Second and third-grade reading, for example, covers matters that are geographical, historical, scientific, literary, etc. In the later grades the readings are classified and assigned to different subjects. In our consideration of the reading practice, however, we have regard here for that reading that is done in connection with the geography work, history work, etc., as well as that done in the literature classes. In the upper grades there is more textbook study and less of the experiential education that comes through a wide, varied, and reasonably voluminous reading experience. The later grades need to widen this reading experience beyond that of the lower grades, not to narrow it.

Whereas the first three grades have available an average of about ten sets of supplementary reading material, the seventh grade has only about seven sets, and the eighth grade only about six. Instead of the quantity of reading material available for the later grades growing more meagre, it should grow in quite the reverse direction. There should be more to read and on a greater variety of subjects, not less. While it can be said that the community has been much more generous with its schools in the matter of supplementary reading all along the line than is the average of cities in general, yet it must be said that the movement which has for a number of years been clearly under way is yet far from having reached its final stage of adequate development. Much yet needs to be done by way of supplying the later grades with needed reading materials. This reading needs to be of such a varied character that the whole world in its multitudinous aspects can be made to pass in review before the inner vision of the rising generation as the chief education which they will get from books.

The varied purposes of the reading experience in the later grades have as yet been insufficiently defined by school authorities and teachers. Reading as a mode of formative experience

shaping the various aspects of the personality is not yet sufficiently valued within the city, it would appear. An unduly large amount of attention and effort is given to the storing up of items of information within the intellects of the children. There is yet an insufficient faith in the power of wide reading experience to develop equally valuable types of intellectual products along with the various other desirable results of such reading. As in most cities, there is yet a larger faith in learning things as a mode of education rather than experience as a mode of education. As the city develops the experiential development type of training, it will develop fullness and width and vitality of reading experience as one of the most important forms.

One grammar-grade teacher said of the text material that is now assigned for the work: "It is too heavy. It is grown-up literature, not literature for children. Except for certain selections, it is not interesting to the children." It is very evident that this is the case. Even when the theme of the story presented is one that is appropriate to the maturity and interests of the children of the grade, it is too often presented simply as a condensed series of fragments of the original story and in a style adapted to adults and not to children. Very many of the selections too have been included in the list for purposes that are altogether legitimate, but apparently through a mistaken judgment as to the kind of materials that are appropriate to the maturity of the grade.

Certain of the most capable eighth-grade teachers met with are using in the eighth grade stories of Greek mythology, Greek hero tales, folk tales, certain of the more mature fables and fairy tales, historical stories, fiction dealing with the Middle Ages, fiction dealing with American history, etc. When inquiry was made as to how the work was carried on, generally the teachers had to say that they lacked sets of books for the work, and were depending on the few copies supplied by the library. For reading Lamb's Tales from Shakespeare, there was no set of books available. For the class reading of vital modern dramas so as to educate the population to a level of appreciation higher than that now represented by the ubiquitous "movies," no modern dramatic literature is made available for the work. Pupils that attend the "movies" with great frequency and appreciation sit sufficiently listless and passive in the reading classes. It is true it will cost the city something to supply the children in the schools with that wealth of interesting, vital reading experience which they need for their full humanistic development. It will not, however, cost the people of the city anything like what they are now perfectly willing to pay for the support of interesting

but educationally relatively valueless motion-pictures as supplied by our commercial agencies.

One of the buildings in the city was observed to be making a studied attempt to systematize the reading so as to make it cover a wide range of desirable experience. A series of nature study readings has been arranged, one book for each grade beginning with the second. Parallel with this there is a series of historical readings definitely laid out for each grade, and a third series of geographical readings. The plan seems not to have been systematically worked out beyond this point. It should, however, be extended to cover biography, inventions, industry and commerce, travels, hygiene and sanitation, poetry, fiction, drama, etc. Reading opportunities in most of these fields are lacking in most of the schools,—except as supplied by the public library in single copies, and which therefore do not lend themselves to class use.

Methods

Where reading selections are unsuitable because of the maturity of the sentiments expressed, or because of their not having been led up to and prepared for by a sufficient wealth of previous reading experience, teaching methods are often sufficiently inefficient for training in good reading habits, appreciation, and understanding. So many words, allusions, figures of speech, etc., have to be explained, and the mature adult sentiments have to be so fully discussed, that sometimes but little real reading is accomplished. Now it is a well-known law of education that it is only practice in doing a thing that trains one for doing that thing. And what is more, it is only practice in doing the thing in the way that it is to be used that will train one to do the thing in the way that is desired. Explaining, talking, dictionary work, using words in sentences, etc., are not *reading*. Each of them has a proper place, though when the work is well done it is minor and incidental. When they are so much emphasized as to consume the major portion or even a large portion of time and effort, one finds a clear symptom of lack of previous preparation for this work on the part of the class during previous years, or an improper selection for the present work of the class, or both.

The nature of the selections, especially those of the grammar grades, has brought about and made necessary the use of such undesirable methods at the present time in the schools of the city. The way out is a more complete formulation of the purposes of using reading as a mode of education, and the selection of a more complete and better graded series of reading materials. For either the formulation of the curriculum or the determina-

tion of methods, one must first know what one is after. The school organization has not yet adequately defined its purposes.

Silent Reading

The importance of silent reading is referred to in the published manual only in connection with the reading work of the fourth grade. The statement is general, and probably is intended to apply to all of the later grades. The manual, however, does not sufficiently emphasize it, and it consequently receives rather insufficient emphasis in the schools in general. It is a matter, however, that is taken care of automatically as the volume of reading experience is increased. While the class work at present is given mainly to oral reading and discussion, yet if the reading program is widened in ways herein recommended the greater portion of it must of necessity be silent reading experience.

Almost all of the reading of adults is for thought, for information, and for imaginative experience. For these purposes silent reading is more effective and more expeditious. Except for a few types of people who need it as a part of their vocational preparation, oral reading is so little used as not to warrant special training after the primary grades are passed.

Stories Read or Told to Pupils

Throughout the printed course of study large emphasis is placed upon the telling or reading of stories and poems to the pupils by the teacher. The first-grade outline specifies six kinds of material, and the eighth-grade outline seven kinds of material to be given in this oral way.

It would seem to be better for most purposes, at least, for the children to read the stories, poems, etc., themselves. In general, teacher-labor is expensive, and must be used for a large variety of purposes for which books cannot serve as substitutes. When a book can be made to serve as a substitute, it would appear that the method would be much more economical and for most purposes just as serviceable.

The writer is able to find but one major justifiable reason for a teacher's reading the stories and poems to the pupils. One's pronunciation, mode of utterance, and auditory imagery are shaped in large part by what one hears. To listen to the reading of a teacher of finished pronunciation, enunciation, etc., is an essential element in training pupils in the pronunciation of words that have not yet become portions of their active speaking vocabulary. To listen to a good voice is part of the necessary training in the right control of the voice. A teacher should therefore

read to the pupils. It is more important for their education than that they do the oral reading themselves.

The amount of such oral reading by the teacher should be adjusted to the needs of the pupils. In regions where the children are of immigrant stock and unused to hearing properly spoken English in their homes or on the playgrounds, there probably should be a large amount of such reading, always dealing with stories or informational articles that strongly appeal to the children. In schools where the children come from native American homes, it is probable that not a great deal of such reading is needed. In general, the ordinary classroom speech of the teacher will be sufficient for the purpose.

It cannot be urged that the imaginative experience accompanying the reading is more vivid or more effective when one is listening to the oral reading of another than it is when one is reading the matter silently. This may occasionally be so in the case of selections that are oratorical, impassioned, or for emphasizing the rhythmic and lyric aspects of poetry; but with most types of reading it is desirable that pupils should be trained through practice to get the full experience through silent reading without having to depend upon others for intensification of his reading experience. To be able to do much reading wholly independent of others is one of the ends of the training.

The Grand Rapids Public Library

Among the things needed for the effective conduct of public education, after teachers and buildings have been supplied, the most important doubtless is a supply of reading materials adequate in quantity and suitable in quality for the children of the different levels of advancement. In connection with the topics of reading, history, geography, science, etc., we have discussed the textbooks and supplementary reading sets. A no less important factor, however, where the work is adequately developed is the educational co-operative work of the city public library. In this respect Grand Rapids is fortunate in a highly unusual degree.

To begin with, the form of organization is excellent for the purpose. The library is governed by a board that is sufficiently separate from those who control the school affairs proper, and yet it is sufficiently linked to the educational organization to secure thoroughgoing co-operation. Of the six members of the Board of Library Commissioners, five are elected by the citizens at large, including women, on a non-partisan ballot, and the sixth member is the superintendent of the public schools, *ex officio*. At the present moment the superintendent of the

city schools is the president of the library board. The title to all property of the library rests with the Board of Education.

For more than twenty years the city library has been placing deposit and branch libraries in all of the school buildings in the city. The legally connected and closely co-operating boards of education and of library are thus by means of a single service systematically taking care of the reading opportunities of all of the people of the city, both juvenile and adult. In the purchase and management of books the board of education takes care primarily of the desk books, the supplementary books, and the classroom reference books,—all of those books that are kept permanently within the classrooms for the systematic classroom work. On the other hand, the board of library commissioners supplies the general all-round reading needed by both children and adults, and also the periodical literature which is supplied in unusually generous amounts, both in the central library as well as in all of the branch libraries in the school buildings of the city.

A reading room of generous size is now supplied for the branch libraries by the board of education in about one-third of the regular school buildings of the city; and such a room is being provided in each of the new buildings. The school board supplies heat, light, and janitor service, while the library board supplies the books, periodicals, card catalogues, and the librarians, and conducts the weekly story hour during the season, the course of free lectures for children and adults through the year, and the systematic instruction of the children in the uses of the library. These branch library rooms are so arranged that they can serve as reading rooms for the children during the school day and as reading and library rooms for the adult community during the day, the evening, Saturdays, and all school vacations, except certain legal holidays, both afternoon and evening. Separate entrances and separate heating facilities are provided for the community uses while the schools are not in session.

The classrooms of the regular size used for branch library purposes in the beginning having been found to be too small, the boards are making provision in all new buildings for much more commodious quarters. This is demanded not only by the needs of facilities for the reading activities, but also for the increasing development of the library lecture courses and the ever-increasing attendance.

The branch libraries are equipped with from 1500 to 3500 volumes, of which about half are for children and the rest for adults. Each is supplied with twenty-five to thirty current periodicals in the English language and special periodical liter-

ature in foreign languages, adapted to the population of the district. The use of the books intended for children and adults is carefully studied so as to keep only "live" books upon the shelves, and to return any unused books to the central general library.

In most of the schools in which branch libraries have not been opened, there are what are termed deposit libraries managed by the principal and the teachers, except in the case of five of the larger schools such as Madison, Diamond, Straight, Widdi-comb, and Jefferson, where an assistant from the library takes care of this work one day each week. The size of these deposit libraries is largely determined by the demands of the pupils. They consist of books that are currently used, unused books being returned. The size of the library is thus taken care of automatically. Its expansion and diminution constitute a barometer of reading conditions within the building.

In addition to the relative permanent library sets referred to, the travelling library sets constitute an important feature of the work. When a teacher is treating, for example, a topic in history like the American Revolution, she sends in to the central library for a travelling library box of books, ranging according to the topic from twenty-five to two-hundred books, for collateral reference. This special collection may be kept at a building for four or six weeks, and the books are issued by the teacher to the pupils in informal ways—that is to say, they are not charged in the usual manner upon the regular cards. Those who have not tried the plan in the generous way in which it is carried out in Grand Rapids are inclined to venture the guess that this plan would result in the loss of many books. The books of both travelling and deposit libraries are kept in the buildings and classrooms on open shelves, the pupils having access to them at any and all times while the building is open, whether the teacher is present or not. The library makes the statement, however, that according to the last official report the entire number of books lost in connection with all of the library work in the schools for the entire year was only fifty-eight copies. A number of these copies will probably find their way back into the library in time. It appears that where books are made so easily accessible and so abundantly accessible as that provided by the library service in the city, there is no motive for a child trying to keep books that have not been charged, and thus trying to build up a little unneeded private library at the expense of the big ever-ready public library.

The library employs a number of ways of encouraging the children to use the books so variously supplied. There is the weekly story-hour from October to March at the central library

and at each of the branch libraries. Monthly bulletins are issued calling attention to all new books and to classified lists of books of various kinds. Eight or ten public lectures are provided each year for adults and children at each of the various school branches. Printed slips are prepared announcing each of these public lectures well in advance throughout the district. On each printed slip there is given a list of ten to fifteen books and periodical articles relating to the topics treated in the lecture, which can be read preparatory to the lecture, or which may be read after the lecture has stimulated interest in the subject. These lectures are attended in continually increasing measure by both children and adults, with a consequent continual increase in the value of the lectures for stimulating reading on the part of juvenile and adult population.

A further method of stimulating reading is the organization of reading clubs in the schools. In one of the buildings of the city last year an average of nineteen books per child was read by the pupils of the building, the children of all grades including the kindergarten being counted in taking this average. Many children read a book a week, the habit formed during the school year tending to persist during holiday and vacation seasons. There are some children who read two books a week through the year. Their library cards permit them to take out at one time one of fiction and one of non-fiction. Two a week is not excessive for rapid readers when the content is of this balanced type. Since children should be early trained for rapid silent reading, this constitutes one of the most effective possible devices for providing the training. It is rapid voluminous reading of this type that should take care of the major portion of the training in the mechanics of reading.

The books for the schools are chosen by specially trained librarians familiar with children's reading. Recently published and therefore untried books are tried out in the children's department of the general library before they are sent out to the various school, branch, and deposit libraries. After being sent out, reports are received from principals and teachers as to their suitability for the purpose. Principals and teachers are also asked to send into the library any suggestions as to what they want. This method of securing new books combines co-operatively the labors of both the library and the school people, and draws upon the best information and experience of each.

The library also secures information as to the children's reading in its "Annual Conference on Children's Reading." Both teachers and parents are represented upon the program, the discussion touching upon the reading tastes of children, reading

needs, suitable books, amounts of different types of reading covered by different classes of children, relative values of different types of reading, and the like. To make the discussions concrete and practical, the Conference limits itself each year to a specific portion of the reading field. For example, the Conference this year discussed "Love Stories for Children" and last year, "War Stories for Children". This type of conference brings together all of the people interested in promoting and improving children's reading, and prevents any group from working in isolation from the others.

After school days are over the most important continuing educational influence,—for we are learning that education must be a life-long affair—is the reading habit in those who have been so fortunate as to acquire it. Education through library reading, therefore, when full and effective in ways evident in frequent cases in this city, is a type of education that does not therefore lapse when school days are over.

We have but one recommendation to make: Let the work grow and expand and continue along the lines already provided for by the Board of Education, the Board of Library Commissioners, and the professional people within both organizations.

II. HISTORY

The average number of hours given to classwork in history as reported by principals in their reports on distribution of class time (not study time) is shown in the following table. Beside it is placed the average practice in fifty cities as reported by Professor Holmes in the Fourteenth Yearbook of the National Society for the Study of Education, 1915.

TABLE XXX
Hours per Year Given to History.

Grade	Grand Rapids	Fifty Cities
I	6	27
II	4	31
III	4	35
IV	7	57
V	11	67
VI	10	71
VII	69	91
VIII	120	117
Total	231	496

The figures show that history does not receive serious consideration except during the last year and a half of the elementary-school course. The published course of study recommends only thirty minutes per week during the first half of the seventh grade. In most schools, however, even upon this level,

it finds no place whatever upon the program. Naturally, when the subject receives such scant consideration in the first half of the seventh grade, it receives no fuller consideration in the grades preceding the seventh.

Since about thirty per cent of the growing generation in Grand Rapids drops out of school before they have taken the work of the last year and a half, it follows that this large per cent of the population of the city does not have that fundamental training in American citizenship that comes from a study of American history. Here we find one of several reasons why history should be given larger attention earlier in the elementary-school course.

From a careful reading of the teachers' manual in history and from observation of the work in the elementary schools, it appears that the city has not adequately defined its purposes in the teaching of history; that history is insufficiently valued as a training for citizenship; that the methods of using history as a means of training in citizenship have received insufficient consideration; and that the historical materials to be covered by the pupils, as history is used in training for citizenship, have not always been chosen looking to that important end.

It is expected that the course of study shall be followed during the last year and a half,—though reasonable latitude is allowed to teachers in the modification of the outlines. The printed course, however, presents an outline for all of the grades, beginning with the first. Up to the middle of the seventh grade, however, the course is optional. They may substitute a totally different outline or omit the subject altogether. Since the outline of work up to the middle of the seventh grade is not to be taken seriously, naturally there was no serious responsibility resting upon the course of study committee when it drew up the outlines. Without such motivating responsibility, good courses of study are not usually drawn up. It is the judgment of the writer that such occurred in this instance.

The committee says in its introduction: "The work in the earlier grades cannot be called history, sociology would be the better word." It is the judgment of the writer that biography, personal incident, adventure, and history, all of a concrete, vivid, stirring, active sort, should precede those generalizations concerning peoples and nations that we may call elementary-school sociology. The numerous sociological questions which are presented in the outlines for the early grades represent problems of great complexity and difficulty, and should be reserved for later treatment. They have little place in the primary grades of the public schools. Only some of the simpler matters should be at-

tempted in the intermediate grades, and here it should be nothing more than generalizations from concrete matters treated in this history. Sociological conditions in their simpler, rougher outlines can be seen by the children as the background to the actions of men that take place in the foreground of the stage. For example, after one has read concrete stories of early explorations in America, including the exploration of the Mississippi and of the Rocky Mountain region; after one has read stirring stories of Indian life and adventure; after having read the incidents of Indian wars and the Indian fringe of other wars, etc., it is then easily possible for children to generalize as to the social conditions and relationships of the primitive American tribes. Children can then discuss housing, government, weapons, methods of warfare, domestic animals, the protective instincts, influences bringing people together and uniting them into tribes, primitive beginnings of agricultural implements and methods, and the various other sociological matters relative to the Indians. But these sociological generalizations should come late. They do not belong in second and third grades as provided in the outlines.

The second-grade outline indicates some recognition of this principle, though apparently inadequate recognition. After recommending a rather abstract sociological treatment of "shepherd life," in one of the later sections they recommend the introduction of the stories of Abraham, Joseph, David, and other shepherds that may suggest themselves. Except for the fact that Joseph was not a shepherd and David gave but little time to it, the recommendation refers to the sort of thing to which practically all of the history work of the second grade should be devoted,—that is to say, to simple interesting biographical stories. Out of a series of concrete stories of shepherds, children can, when the right time comes, generalize as to the various aspects and relationships of shepherd life. To fill the children's minds full of concrete imagery and stories is perhaps the method of laying the proper foundation for the later more generalized stages of understanding.

The course of study attempts to organize various types of study, and to give different ones at different points in the course. The second-grade work is to be given to shepherd life; the third-grade, to agricultural life; the first half of the fourth-grade, to the history of Grand Rapids; the second half, to a brief review of general history given biographically, and treating of Rome, Greece, Persia, the age of chivalry, early England, and early Norway. The first half of the fifth grade is devoted to the biographies of prominent Americans; the second half, to biographical studies of European, African, and South American history

during the modern period. The first half of the sixth grade is given to discoverers and explorers of North America, and to inventors; the second half, to a general survey of the heroes of the ancient world, Greece, Rome, China, Persia.

This series of general topics seems to represent the zig-zag results of several influences that have been at work. The shepherd life and agricultural life of second and third grades appear to have grown out of an old recapitulatory theory of education. The history of Grand Rapids in the fourth grade appears to result from the influence of certain local patriotic and historical societies. A part of the work of the second half of the fourth grade and of that of fifth and sixth grades is for the conscious purpose of preparation for the later study of American history. Another portion of it seems to be due to a feeling on the part of the committee that for general cultural purposes one should have a wide backward view over general world history.

It is the judgment of the writer that history rightly taught is a matter of great practical value. But actually to be of large value, however, the materials must be chosen with an eye single to the practical values that are to accrue from historical reading and experience. The purposes must be held definitely in mind. Except as the history curriculum looks to results that are needed in the community life of today, there should not be any history curriculum. As a matter of fact, however, we are in our country confronted with a host of social, economic, industrial, religious, political, and other problems of the greatest complexity. Their solution in our democracy depends upon an adequate understanding of them on the part of the entire citizenry. The historical approach to each of these various problems is the most illuminating approach. It shows the problems in their simple early forms. It shows the nature of the influences that have been at work by way of bringing about the present complicated relationships. History, therefore, is one of the best possible modes of analysis of the factors that enter into present-day problems. It gives width of vision in the treatment of these problems; it teaches tolerance and patience in the working out of the problems.

Materials should therefore be chosen chiefly for the purpose of revealing the nature of present-day social conditions and problems. Our problems are world-wide in their ramifications and some of them reach back to a point even before the dawn of written history. Many of them reach back into the ancient period. For illuminating our present-day problems, therefore, there is reason for teaching world-history beginning with ancient times. The early work in primary and in intermediate

grades will deal mainly with biography, adventure, migrations, wars, myths, legends, etc. It will not narrow itself to shepherd life in the second grade, and agricultural life in the third grade, and Grand Rapids life in the fourth grade; but in these early grades the whole world will be its field. The later intermediate grades will read more connected stories of nations, ancient and modern, treated mainly from the biographical point of view and dealing with the larger simpler activities of the nations,—those simple fundamental matters which children of the intermediate grades can understand, such as wars, migrations, struggles of major groups within the nation, changes in major outlines of government, etc. Everything at this level will necessarily be largely personal and the interests will grow out largely of the basic instincts of conflict and danger. By the end of the sixth grade, children through such reading should have a considerable familiarity with the outlines of the chronological, historical movements in the major historical nations, ancient and modern, the basic chronological outline of American history among the rest.

In making this recommendation in other places the writer has found the objection to arise that the work above recommended simply cannot be done. It is usually said that a familiarity with the stories of so many nations is more properly a problem for the level of the college rather than for that of the intermediate grades of the elementary school. Let one, however, look over the supplementary readings of a biographical, legendary, and historical character designed for the use of, and actually used in third, fourth, fifth, and sixth grades in American cities at the present time, and let him note the quantity of such reading that is actually covered by the children in cities where they are generously supplied with such reading materials,—let one go far enough into this problem that he may forget his traditional preconceptions,—and he will discover that the program suggested is a practicable one. Naturally it is to be done in ways and with the use of materials that harmonize with the nature of childhood of those ages to be found within the intermediate grades. Children of this age are an active, restless, human species. When they are given the opportunity through appropriate appealing reading to participate imaginatively in the historical experiences of men and of people, they are just as active and just as restless and will enter into the imaginative experience with the same zeal. Things of course must be rapid. The panorama must be always changing. The pupil must not have to stop too much to learn things, but must simply live in the current of the action. In proportion as this experience is vivid and vital, it will shape his mentality and he will remember the out-

lines of it. He will not often stop to learn things as he reads, and yet the learning that is the outcome of this type of experience will be the best and surest type of learning. The learning that comes from experience abides; while the learning that comes from memorizing, lacking vitality, fades and disappears.

In the introduction to the history course of study the committee has supplied three pages of bibliography of historical readings. Very many of the books are of the types appropriate for the work of the intermediate grades. With the excellent beginning thus made it ought to be possible for the city to assemble a still more complete list of books appropriate for each of these grades, and from these grade lists select historical readings of the character recommended. This is not reading to be done in addition to that recommended in our discussion of reading. This should be a portion of the general reading program. It is a matter of no consequence whether the reading is placed in the reading class or the history class.

Many good reasons can be given for such a familiarity with the history of Grand Rapids as intended by the outline of work set down for the first half of the fourth grade. It should, however, at this level, be biographical, anecdotal, personal, and concrete, so far as possible, with the general outlines of the economic and other growth of the city chiefly in the background. It should be a thing to be read and appreciated; but not a thing to be learned, recited upon, and examined upon. At a later period when one is considering the civic problems of the city, as one discusses the fire department of the present, it will be properly appreciated and understood if the history of the development of the present fire department from the beginning is introduced rather fully. In the same way one will best introduce the detailed history of the school system, the board of health, the water supply system, the sewer system, the police department, the building situation, the industries of the city, etc. One can then best introduce the city's history in connection with each of these various matters. These studies are of a type for grades subsequent to the intermediate.

The history outline provides that thirty minutes per week during the first half of the seventh grade should be devoted to a discussion of city and county civic problems. While these matters should be taught, it must be first noticed that this is not history, and that no history is recommended for the first half of the seventh grade.

Certain civic problems should be taken up for study at this time, but it would be better to take up a few problems on the level of the comprehension of the students rather than to try to

follow so complete and elaborate an outline, all of the work being done relatively superficially,—in the rare instances in which it is attempted. To handle a few topics seriously and thoroughly would be much better than scattering over the whole of so long a list at this period. Civic topics not treated during the first half of the seventh grade should be treated during the second half of this grade, and during the eighth grade. The work is important enough to justify its being distributed over a long period of time. It is also sufficiently important to warrant its being looked upon as a subject in itself, and therefore something more than a subject that is taken care of provided there is time enough left after the history work is done.

History in the Grammar Grades

A spiral method is employed in the teaching of history during the last year and a half of the elementary course. Both the colonial period and the national period are covered twice. In the first of the three semesters given to this subject, the colonial period is covered down to the end of the Revolutionary War. In the next semester, the class goes back to European beginnings of American history and brings the whole subject down to the present, but looking primarily to migrations and expansions of the population. Thus it covers exploration and settlement, not only of the colonial region but also of the Mississippi valley, the western great plains, the mountain region, the Pacific Coast region, and our insular possessions. Naturally it deals with the various conflicts and difficulties met with in this growth and expansion of nationality. In the third and last semester the national period, beginning with Washington's administration, is covered. The outline omits the period from 1783-1789 during which the country was governed under the Articles of Confederation.

The first and third semesters of this course represent in the main the usual traditional plan of organization. The half year devoted to the topics of westward migration and national expansion is run in between the two halves of a usual course.

The plan is unusual. Much can be said in favor of it. More could be said in favor of it if textbooks suitable for this plan of course were available. The first half of the second semester's work duplicates in considerable degree the work of the first semester; and, on the other hand, the third semester's work duplicates in considerable degree the second portion of the middle semester. But such repetition is an essential element of any spiral plan of organization. It is intentional and serves as review. Two impressions a half-year apart are better than one.

As the course is drawn up, the second treatment, however, is from a different angle. There is a somewhat different immediate purpose in view; and in large part different materials are used.

Were proper textbook materials available for the pupils the plan as drawn up could be commended as being distinctly superior to the usual traditional plan of treatment. The chief textbook difficulty is in connection with the middle semester. For this treatment advised is presented in part in a book that is used in the graduate school of our university; and in part it is to be found by selecting passages here and there through the five regular texts of the open list. It is generally believed, however, that at this stage of maturity the chronological treatment of history should be presented in a connected account, which can be read through in a straightforward manner from the beginning to the end. Even after the students have a good understanding of the general chronological sequence of affairs and are taking up the study of specific topics, it is felt that the treatment of a topic should be organic, sequential, connected, so that the children can read the whole of it from beginning to end as one organic story. It is not good in the basic teaching of history at this period for pupils to be compelled to search through a number of books by way of assembling information that bears upon specific topics that are furnished in a topical outline. Collateral work supplementary to the connected treatment of a basic text is valuable and desirable. It is generally thought to be better, however, to use a text as the basis of organization of all such collateral material rather than the bare skeleton outline. For children of this age such a skeleton is generally considered to be too frail for secure organization.

In the first and third semesters of the work certain teachers have preferred the use of a single textbook as the basis of the work, and to use library or desk copies of the other four books on the open list, and still others in addition for supplementary collateral reading. In other cases teachers have preferred the five book plan, the different pupils being encouraged to purchase different textbooks so that each of the five adopted texts will be found in the hands of pupils in the class. The basis of organization is the outline given out by the teacher. All the information then in all of the books is used by the pupils at the recitation time. The result of this latter plan, however, is that the basis of organization must be the outline, and students cannot read the text in its sequential treatment as laid down in the book. Pupils are from the beginning to the end of the year skipping about, finding information on the various topics. The

former plan is probably the more effective plan of organizing the information and study, and at the same time secures the pooling of the information from the same and even additional books. It appears to be the better method.

While commending the general organization of the grammar grade work as it stands, it is the belief of the writer, based upon the practice in progressive school systems, that the present form of organization of the work is but temporary, and that in the next few years great improvements can and will be made. This will be accomplished in large part by developing the history work of the fourth, fifth, and sixth, and first half of seventh grades. An appreciation of the general chronological development of the country in its simpler basic aspects should be rather fully developed by the end of the sixth grade. Much that is now done subsequent to the middle of the seventh grade should be accomplished before this point is reached so that the seventh and eighth grades could be given to the connected treatment of a considerable variety of topics, the understanding of which is demanded by our present problems of citizenship. One of the first of these topics that might be taken up for special treatment might well be that of "Westward Expansion" which the city has already, so far as the outline is concerned, very fully worked out. A second simple topic might be the growth and development of transportation and communication systems. The connected treatment of the history of railroads, waterway transportation, roads, postal service, telegraph and telephone, etc., can be made simple, concrete, interesting and intelligible. With a background of understanding laid in the earlier grades of the general chronological development, this topic or this series of topics may very well be treated in connected form without reference to any other aspects of the national history except as they are related to the topics that are being treated. Other topics that might then be similarly treated are such as the following: the industrial development of the United States, the growth of manufacturing, the growth of commerce, the development of mining industries, the development of foreign commerce, conservation of our natural resources, pensions, control of the hours of labor, immigration, taxation, tariff and free trade, the control of public utilities, the control of disease, the water supply of cities, city beautification, etc., etc. Some of these topics may seem sufficiently fantastic because of our having become more or less accustomed to think of a conventional series of topics as belonging to the treatment of our American history. As a matter of fact the history cannot be justified except as it affords illumination of our present-day problems of various kinds, and particularly those of citizenship. The treatment of a topic is

lacking in substantiality if the historical background of it is not given as a portion of the treatment. Since so large a proportion of our pupils do not go to high school, if our citizenship is to be prepared, some of the treatment at least must be given during the grammar-school grades.

The program suggested can be worked out and adopted only gradually, because it is not possible yet to find satisfactory textbooks or other treatment of many of these various civic problems. The demands on the part of city systems for such reading material is so recent that the supply is not yet forthcoming in any adequate degree. For the present any program must be drawn up with a consideration at the same time of the reading materials that are available, or which can be made available. In large degree teachers are textbook-trained. They know the subject in its traditional content and form of organization, but they are relatively uninformed as to the historical background of our various civic problems. They cannot be expected to perform the large labor of gathering together information on these topics and of presenting matters in part orally and in part through outlines of readings from various sources to be covered by the pupils. A good body of reading on any topic should be made available for both teachers and pupils by the overhead management before the work is attempted.

The method employed in the history work of the grammar grades, so far as observed in the dozen visits made to such classes, was mainly of the usual question and answer type. The task of the pupils was to memorize the facts and then to give them out in the recitation in answers to questions. This fact-learning and recitation method is coming to be looked upon as less effective for the serious purposes of teaching history than the experiential method of re-living the reconstructed life of the past through the imaginative experience of reading in which the treatment is full, concrete, vivid, and interesting. At the present time there is too much fact-learning and not enough historical experience. This is not to depreciate the worth of facts. It is to indicate a method of arriving at a memory of facts that is more effective than the direct method of memorization, and which secures a variety of other good results at the same time. The textbook fact-learning method is an ineffective method, and a wasteful method because relatively ineffective.

The type of work here recommended is not possible in a city that adheres to the individual purchase plan for textbooks. Only as the textbooks are publicly purchased and held by the school will it be possible to carry through any such plan of work. This is of course already realized by the community as indicated by

a fairly generous supply of that type of text material which has been misnamed supplementary reading. It is this type of concrete reading that must really constitute the fundamental text material. The historical textbook series must include a large number of books, each read fairly rapidly for the sake of historical experience; not read slowly for the sake of memorization of the facts. For the sake of economy, therefore, co-operative public purchase and ownership is desirable and necessary.

The course of study for the grammar grades presents a long series of topics, and gives references in simply a general way. A great deal of unnecessary labor is thus thrown upon the teachers of the 8-1 grade by way of searching through the various books for the purpose of finding the materials on the different topics. It would be very economical in teacher's labor, which is greatly needed for other things, if the published course of study would give series of reading references in connection with the various topics of the outline. This could provide for all teachers as full a supply of reading references as is used by the best. It would be a great improvement to bring the work of all up to the level of the best. Such series of readings would not prevent any teacher's going farther afield in the search of still more appropriate materials if the teacher so wished. It need not prevent any desired degree of flexibility in the administration of the course. As a matter of fact, it will promote flexibility and rational choice. By giving so large a nucleus of material ready at hand, teachers are given time to look further afield.

III. CIVICS

The course of study makes no adequate provision for the teaching of the civic problems met with by the people of Grand Rapids. It provides that thirty minutes a week in the first half of the seventh grade shall be given to civic problems. But the course suggested is optional; education materials are not provided; where they may be secured or what they may be is not indicated in any way. The course seems to be theoretically rounded out instead of being a series of topics adapted to the interests and mental maturity of the children; or of relating to the civic needs of the city.

The course also suggests that the civil government of the United States should be taught during the last semester of the eighth grade. As a matter of fact, the course is also providing that the entire national period shall be covered during that same time. The historical task is of such magnitude that it appears not possible to do both in the time at the disposal of the history. It is found, however, that in one of the junior high

schools about half of the time is found for the study of civil government. In other eighth grades this time is not found, and the history consumes all or practically all of the time.

The chief criticism of the eighth-grade recommendations concerning civics is that the teaching suggested does not particularly relate itself to our present-day civic problems. The thing recommended is a study of the structure of the governmental mechanism, mostly in the abstract.

The structure of government, however, is not the thing that gives us most trouble. The thing needed by citizens generally as civic training is that enlightened public opinion on the many questions of public policy necessary for the efficient operation and supervision of the workings of the general mechanism of government. An understanding of problems of the type enumerated in the discussion of grammar-grade history is the thing needed in our present-day democracy.

Civics should not be a mere addendum to history. Quite the reverse, the civic problems should be central and the history subordinate, in the sense that historical materials are chosen for the illumination of the social civic problems. The two should possibly be developed together; but after the early chronological background has been taught, in all probability the organization of the two subjects should be brought about by first selecting the sociological civic problems that require historical illumination, and then developing the treatment with the history consciously used as only one of several means of illuminating the situation. Along with the history will be geographic, economic, and scientific considerations, as the social problem is looked at from many angles. The city in this age of complicated problems is expending but little time, effort, thought, or money upon the training for a conscious understanding of these many present-day problems.

The city is expending \$32,000 annually for the teaching of drawing in the elementary schools, for which no such good case can be made out. The city is expending \$30,000 each year for the teaching of music in the elementary schools, for which equally no such serious arguments can be brought. The city is expending more than \$40,000 annually for the teaching of grammar in the elementary schools; and yet there is probably no man who will urge that the problems of correct speaking on the part of the masses of the population is of equal importance with a wise performance of their civic duties. We would not undervalue any of the studies mentioned. They are valuable. We merely wish to call attention to the probability that a thing that is still more valuable is being relatively neglected.

The best thing being done at the present time in this field is the study of "current events". The study of such current events can be given vitality and significance, however, only as the readings are used for the illumination of social problems that have already been studied more or less systematically. The civic studies should therefore provide the apperceptive basis for an understanding of the significance of current events.

IV. GEOGRAPHY

Geography is accorded a place upon the program from the third grade to the middle of the seventh grade. In these grades the subject receives about the usual amount of time. The course of study manual outlines geographical studies for the last half of the seventh grade and for both terms of the eighth grade. These studies are given no separate place upon the program, however. It is expected that they be taught in connection with the American history. The studies relate solely to America, almost wholly to the United States, and are the things that should properly be covered in developing an adequate understanding of United States history.

Most of the work consists of learning the textbooks in the usual manner, and giving back the facts to the teacher in the recitation. As a rule, the matters to be covered in a given lesson are outlined in detail by the teacher. The pupils then learn the facts relative to each of the topics and in the recitations give back the facts which they have memorized for the purpose.

The buildings are supplied with standard sets of geographical readers adapted for the work of the later portions of the course. The readers supplied, however, are too difficult for the earlier portion of the work. Occasional sets of geographical readings of a varied character are found in third, fourth, and fifth-grade rooms. In general, however, there is a great dearth of proper geographical reading material for these grades. For the later portion of the course the geography manual makes reference to certain geographical readings of a type rather more modern than that of the geographical readers generally supplied. It seems, however, that these better readings have not yet been generally supplied to the schools of the city in sets for class use.

We recommend that serious attention be given to the matter of supplying proper quality and quantity of geographical reading materials. Pure fact-memorization from the textbooks is ineffective because of the transiency and superficiality of results, and the work is relatively wasteful because relatively ineffective. Effective geographical work must be experiential. In the reading of travels, of the lives of peoples in various lands, of

connected stories of the industrial life in our own and in other lands in connection with a variety of industries, etc., always noting the maps at the same time, and noting geographical relationships, the facts of geography can be given significance and substantiality. The experiential route, while appearing to be longer and more complicated than the simple direct memory method, is, however, the one that is most economical in the end. In this connection we wish to commend most highly the yet undeveloped plan of teaching geographical relationships during the last year and a half of the elementary school,—namely in connection with the history. As the history course is expanded in the intermediate grades, the proper attention should be given to the geographical settings in the various countries touched upon in the historical readings. As the children read the stories of Greece, Rome, or colonial and pioneer life, there should always be a generous supply of maps and pictures for reference, by way of keeping clear the geographical background of the action.

Very little evidence was observed of the use of the problem-method of teaching geography. This is a method of vitalizing the work, the use of which we wish strongly to recommend. The problem work can be most effective if based upon wide geographical reading experience rather than upon the textbooks alone. It can, however, be used for giving a large degree of vitality to pure textbook study.

The work of the third grade begins the subject with an attempt to develop the basic concepts necessary for an understanding of industrial and commercial geography. In the words of the manual: "The industrial and commercial idea is the first central idea to be emphasized." Later then in the third grade, attention is given through both reading and observation to physiographic matters by way of developing the basic concepts for this side of the work. The elementary geography text is in the hands of the pupils. It is the judgment of the writer that commercial, industrial, and physiographic matters are not appropriate for the degree of immaturity of the pupils of the third grade. These are matters that should come considerably later. Interesting human stories that have a geographic setting and background with which we desire the pupils to become familiar are more appropriate to the type of interest and degree of mental maturity of third-grade students. The schools that are using "Eskimo Stories", "Little Folks of Many Lands", etc., are discovering the type of material that ought to be used chiefly in the earlier portion of the work. The text is good for its maps and pictures. For these earlier grades it is usually, however, too

abstract and too didactic to be used as the basis of the work. It is good reference material.

The first half of the fourth grade deals with the geography of Grand Rapids. It deals with matters that naturally should be well understood by the people of the city. Many of the matters of the outline, however, should preferably be taught in the history class that deals with the development of the city and the region. Many of the other matters are of an industrial, commercial and economic character that are intelligible only as Grand Rapids is seen in relation to the general situation throughout the United States. The economic aspects, moreover, are scarcely suited to the mental immaturity of the children. It is because the subject is important for both civic and industrial understanding that it should be taught at the period when it can be taught fully and taught well. The economic relationships existing within a modern industrial city are too complicated for fourth-grade pupils. There is a dearth of proper reading matter; and also a dearth of organized and significant materials which the teacher can present orally. Naturally the course presupposes a considerable amount of observation on the part of these fourth-grade classes, but observation can be only occasional and can secure but fragmentary glimpses of the various things. There must be reading materials in the hands of the pupils that present the various industries, etc., in a well-rounded, organic way, before the fragmentary glimpses of direct observation can be properly understood. The necessary reading materials should be produced by the school people in Grand Rapids; but they should be prepared for later grades.

Naturally the observations and the general life experiences of the children of this fourth-grade level should be utilized so far as possible for developing the fundamental concepts relative to the geography of Grand Rapids, even at this early level. The things that can be properly done, however, at this point, are not sufficient for an entire half-year of work. This is indicated by the general practice of teachers in the city. The outline is not actually being followed. It seems that an outline should be prepared which can be followed,—always permitting the desirable degree of flexibility, of course. Where a half-year of work in any subject is looked upon as sufficiently important as to justify the expenditure of several thousand dollars of the people's money, it is of sufficient importance to warrant the careful course-of-study organization of types of work that can be fully carried on during the half-year. To provide one course and then leave teachers to make up and follow another is an indication that the work has not been done seriously, and is not intended for actual direction. Although the statement is here made in connection

with one specific grade and subject, the statement is applicable to portions of several courses.

The course in geography provided for the second half of the fourth grade is of a very different character. It looks at the world and at different countries not from the specialized economic point of view, but from a general human point of view. It recommends that the thought experience be of a type found in "Little Journeys to Holland, Belgium, and Denmark." "The Wide World", "Around the World", "Seven Little Sisters", etc. The textbook is in the hands of the pupils, but where the spirit of the course is carried out as apparently intended the chief value is as a reference book. So far as they go, the recommendations are excellent. The list of books, however, should be extended and should be improved as the publishing houses improve their offerings; and what is more, the books need to be in the hands of the children in full sets for the work. During the course of the year they need to read a number of books for fullness of experience and width of geographic vision. In studies of this type the countries need be taken up in no particular order. The thing desired is mainly geographical experience touching upon life of all sorts in the various lands. With a well-worked-out system of exchange the city need not own such a large number of sets of books of each kind in order to take care of the work in all of the various buildings. During the course of the year a single set might be used in eight or ten different buildings.

It should be noted by the school authorities that the present method of handling the supplementary reading materials is not economical. A set of books adapted for the use of a single grade in a building where there is but one class of that grade may be used once during the year for a month, and then stand for eleven months idle upon the book shelves. With a well-worked-out system of exchange it would be possible without any larger equipment of books than that now owned by the city to supply five times as much reading opportunity to the classes in the various buildings.

When the pupils have reached that stage of maturity that would justify the systematic study of the economic aspects of geography, an outline like that presented for the work of the 5-1 class is excellent. There is a question, however, as to whether this course should be placed so early in the series. It is the judgment of the writer that it comes too early. If more history work were given in these earlier grades, with the geography at the time in the background but fully developed as the background of the history, an excellent foundation would be laid

during this period both for the history and the later economic industrial geography. A course of this type demands a wealth of systematized reading materials, together with the necessary industrial maps, charts, etc. To provide an outline of the type here presented and then actually furnish the pupils in most of the schools with only the regular textbooks, the teachers find it scarcely possible to do anything other than to teach the textbooks in the wasteful, old-fashioned way. They do not effectively lend themselves to the furtherance of such a program.

The first half of the sixth-grade work is devoted to "geographic principles." The first four of the six topics assigned to this grade relate to mathematic geography. Certain of the things need to be known, but in general the matters actually needed can be got incidentally, sufficiently for all practical purposes, and therefore should require practically none of the assigned time of the grade. The last two topics relate to the factors of climate and the applications of the principles of climate to conditions in North and South America. Naturally, a good understanding of these matters is desirable. But it is not necessary to give most of the half-year of 6-1 time to these matters of climate. If so much time is necessary for that degree of understanding necessary for all practical purposes, then the pupils must be too immature for the work, or the teaching helps are inadequate for the purpose.

It is the judgment of the writer that at this particular level of geographic teaching the principles of climate should be introduced in connection with studies of a concrete character in which the climatic principles are actually seen at work controlling the factors within the situation. To read a full and concrete story of Eskimo life is the method of making perfectly clear to children the climatic effects of high latitudes. To read a story of life in the high Alps, is to teach in the most effective fashion the effects of high altitudes upon climate. A concrete study of the life and activities of peoples in Arabia or North Africa or certain portions of our far West, is to show concretely and effectively the effects of dryness as a principle of geographic control. In connection with such concrete stories, if the pupils are sufficiently mature, one finds the best possible setting for an explanation of the dryness through a consideration of prevailing winds, the proximity of bodies of water, etc. At a later stage of the work in the systematic study of cotton, wheat, coffee, corn, etc., etc., again we are dealing with concrete situations in connection with which the geographical controls can be seen actually and actively at work. They can only be understood rightly as they are thus seen at work. We are not here recommending that the climatic principles be taught "incidentally". We are recommend-

ing that they be taught as they are seen to be integral portions of real situations; taught consciously and purposively; but taught in connection with specific situations in order that they may be taught effectively. When taught in the abstract there are only the forms of teaching. It is not vital. The results are superficial and transient. In the way of intellectual benefits, the work is largely a waste of time.

Although the manual presents a progressive type of course for the seventh grade, the actual work of the schools follows the text for the most part. In general the excellent books recommended for the work of the 7-1 grade are not to be found in the different buildings in sufficient quantities to supply the individual pupils, and cannot therefore be effectively used. An outline method of teaching a subject of this type with pupils gathering materials from a great variety of sources cannot be satisfactory for students of the seventh grade. The need of continuity, of a substantial basis of organization practically forces the following of the textbook upon teachers. Merely to provide a topical outline is not really to provide the conditions of a different type of work.

So much time has been given to a consideration of the geography because of the very great importance of the subject; and because of the possibilities of improvement in a great variety of ways.

Various types of geographic helps are supplied to the buildings for the work. We have already referred to the so-called supplementary reading. For the most part it is reading classified as of this type that should be the basis of the work. As other things are recommended it should always be kept in mind that proper and well-illustrated reading, on the one hand, and maps, upon the other, are the two principal things needed in the work. The schools appear to be well supplied with maps and globes. For certain aspects of the work teachers express the need of certain other maps not now in the possession of the schools. Probably the greatest need of this character is for outline maps of different countries for the work of the pupils in the upper grades. In the matter of pictures one finds that a fair beginning has been made in providing the schools with stereopticon outfits and with geographic slides for stereopticons. This is not yet well developed, either on the side of the quantity of provision or upon that of effective use of the materials for the teaching. It is one thing to present pictures and talk about them at random and quite another thing to use them for illustrating the details of a general well-rounded treatment of a geographic topic. Pictures should generally be subsidiary and merely for

illustrating the details of the larger story which constitutes the primary thing.

V. ARITHMETIC

Formal work begins in the second grade and receives an adequate amount of time during the rest of the course. The algebraic work suggested and provided in the textbooks is not used.

The purpose of the work in general appears to be well conceived. This is indicated by the relative emphasis upon the various topics. The major attention is given to skill, accuracy, and speed in computation. Drill in these fundamentals covers whole numbers, common and decimal fractions, denominate numbers, percentage and its applications, business operations, and mensuration.

An interesting situation is found with reference to the use of the textbook. Many teachers say they do not use it in their work. Others use it but little. The text deals so largely with so-called reasoning problems in which the fundamental facts are so often unfamiliar or obscure. The desire seems to be, everywhere through the system, for problems in which the relations lie clearly upon the surface, so that the major effort may be expended upon the computation for the sake of the drill in arithmetical operations. This practice is to be commended.

For drill in the fundamental operations involving whole numbers the Courtis practice material is used in the schools throughout the city. In almost all cases this type of work is looked upon with favor by the teachers and principals. It provides the large amount of necessary drill ready at hand, together with methods of diagnosis of individual needs and methods of economically checking up of the work. Except for drill opportunity afforded by this material, teachers throughout the system, from the lower grades to the highest, are compelled to write the major portion of the problem material upon the blackboard day after day. The copying of such problems upon the blackboard is a wasteful method of using the expensive time of teachers. Further, it often results in arithmetic lessons that are too short because of the demands for blackboard space and the various demands upon the teacher's time. It is further a relatively unprofitable method of employing the classroom time of the pupils to copy the long lists of problems that really are needed when the work is effectively done. Good work generally requires many problems per day, a large proportion of which in connection with most arithmetical topics should be of the easy so-called mental arithmetic type, with only a minor portion of them of that degree of complexity requiring written work. Na-

turally under the circumstances teachers cannot supply the necessary wealth of easy problems, except as they are given orally during class time.

For the work of the sixth grade a pamphlet has been published by the school authorities which presents a considerable quantity of supplementary arithmetic problems. Printed helps of this type, though much fuller in content and variety of arithmetical opportunity, should be provided for the work of each of the grades. It would cost much less to supply the city with such printed supplementary helps than it now costs to pay for that time of the teacher that is devoted to preparing daily lists of problems, and then copying them upon the blackboard; and the plan could be made much more effective. This is recommended whatever be the textbook adopted for the basic treatment of the work.

In general, the work is of the textbook and drill type, good of its kind, but is mostly undeveloped on the side of practical applications during the later grades. The manual makes the statement that, "In the primary grades the emphasis has been placed upon the four fundamentals, and in the grammar grades upon the applications to actual life." One finds no great amount of evidence, however, of the application of the arithmetic to community problems, civic problems, occupational problems, shop problems, as these are actually found within the community itself. In one school visited the pupils themselves were actually drawing up and dictating problem material as based upon facts drawn from community life. For example, there were problems based upon the increased cost of sugar at the present time, over what it was two years ago; the increased cost of gasoline this year over what it was a year ago; changes in the cost of paper, of dye-stuffs, etc. This type of problem relates itself very intimately with the community situation, and should be more widely used. It should be developed so as to relate to current grocery problems, problems of the meat market, the hardware store, the drygoods store, builders' supplies, public utility corporations, furniture manufacture, street paving, street cleaning, road construction, household accounts, the school fuel bill, the cost of teaching arithmetic annually to 15,000 pupils, the cost of sanitary arrangements and precautions, the problems of the playground and park situation, etc., etc. The applications of arithmetic in the past have largely dealt with commercial transactions. Most of such applications are important. At the present time there are many other commercial applications that are also important, which need to be introduced. But besides the applications to commercial transactions, there should be appli-

cations to a large variety of such other things as enumerated in the list.

A class in one of the schools took up the task of working up the results as found in their building of the recent survey Courtis tests. The work involved a series of problems relating to the finding of averages and of percentages. It is work of a practical type that in larger degree might well be given over to the pupils for training in the last grammar grade or two. Most of the work of this type should, however, be reserved for the grades of the high-school level. For most students upon this level arithmetic will always remain the most important mathematical subject.

VI. GRAMMAR, LANGUAGE, COMPOSITION

This series of subjects receives very diverse treatment in different schools in the city. Sometimes large emphasis is placed upon the grammar, and relatively little upon the composition. Sometimes the large emphasis is upon the composition, with relatively less upon the grammar. Sometimes there seems to be about equal amounts of time given to the two sides of the matter. In the grammar grades of certain schools English grammar is entirely omitted, and beginning Latin is used as the avenue for the teaching of such grammar as the children need. Previous to the sixth grade all of the work outlined in the printed manual is bracketed under composition. The outline for the last three grades provides for both grammar and composition.

Grammar

On the side of the grammar, a beginning language book of the usual miscellaneous type is used in the fifth and sixth grades, and an advanced text of systematic English grammar in the seventh and eighth grades. In general the plan of treatment provided in the text is followed. The materials are sometimes changed in the order of treatment, but in general the textbooks furnish the materials. As observed on the grammar-grade level the work consists of the learning of grammatical definitions, parsing, and analysis of sentences as the major features. In the few classes where the work was observed it appeared to differ rather greatly in character. Sometimes the pupils were alert, the work proceeded rapidly and with reasonable efficiency, and the pupils appeared to be mastering the essentials of the subject. In other cases, the work appeared to be perfunctory, the recitations were guesses, the pupils appeared to be very little interested, and there was a large amount of general passivity

and indifference. In one class visited the work was almost wholly devoted to definitions and classifications, and the teacher was insisting strenuously upon the necessity of having all of the definitions accurate as stated in the text. In other classes the emphasis appeared to be upon a more active type of exercise, namely, the analysis of sentences.

The writer wishes specially to commend the plan of teaching that is being developed in one of the buildings, and would recommend its extension throughout the system. Possibly it may already be employed in other buildings, but was not observed. The work is based mainly upon the active exercise of the analysis of sentences. A series of sentences is drawn up illustrating each important grammatical structure or relationship the understanding of which is to be developed. In the various lists the beginning sentences present the structure or the relationship in its simplest possible form. The lists of sentences then grow gradually more difficult, but with a gradient so slight that the power to climb the more difficult levels is acquired in the process of approaching those levels. Definitions do not have to be learned. Children have an opportunity to see the realities as they exist within the sentence structure. They can explain the nature and relationships of those realities. This serves as a substitute for the learning of definitions and accomplishes the thing that is really desired. The textbook has some value in supplying practice material, though in general the sentences supplied are not well chosen or arranged for carrying out the plan. The text is of further value in the organization of things after they have been learned in the more active way. It is good for summary and for reference.

To make this plan general would require either a different text or printed lists of sentence material for the purpose. Analysis should be both oral and graphic, but should always be simple, direct, time-saving, and deal with fundamentals. It should not be too repetitious of things that are already fully known. The best type of diagram is probably one in which the words are written in their regular sentence order and arrangement, and the relationships indicated graphically by means of simple signs or symbols.

The present method of teaching beginning Latin in the grammar grades of certain schools as a means of arriving at a proper understanding of English grammar has grown in part out of a dissatisfaction with the results achieved through the more direct route of teaching the English grammar. The results of the experiment appear to be rather more satisfactory than those of the English grammar textbook plan. The Latin students are

able to pass the English grammar examinations with a rather higher standing; and in addition they have the benefit of the Latin understanding as well. If after the English grammar teaching has been strengthened in ways easily possible, further experimentation reveals similar equality of results, there would be clear justification for an extension of the plan.

Composition

As one inquires into the composition situation one early discovers the influential presence of "The News Junior", the children's weekly supplement to one of the large dailies. In this are published each week the literary contributions of three or four dozen school children. By furnishing a wide reading public, it vitalizes the written expression of hundreds and even thousands of the children. The plan is commendable, and the schools in general seem to be taking a full advantage of the opportunity.

A second mode of vitalizing the composition work in the eighth grade was by using it as one feature in the training for vocational guidance. In one of the buildings the pupils of the finishing eighth-grade class were making a fairly extended study, after consultation with parents, relatives, and associates as to the possibilities and probabilities of future vocational choices. This was being written up in systematic form by way of making definite the various problems involved. In other cases themes deal with the situations in connection with various occupations.

Another commendable type of composition work, both oral and written, is the preparation of careful reports on observations or collateral reading relative to historical topics, geographical topics, civic topics, hygienic topics, nature study topics, etc. And there is also full practice in letter writing.

It is possible that the written composition work should consist mainly of these two things. As one teacher phrases: "These children in after-life are going to write only three things: letters, simple memoranda, and occasionally reports. The only kind of composition in which they need training, therefore, are the two things of letter writing and reports."

This teacher's view of the matter is sound and practical. It is also in complete accord with the demands of good method in the teaching of the so-called content subjects. The work in civics, hygiene, sanitation, history, geography, etc., require for clear thinking on the part of the pupils an abundance of oral and written expression. A proper carrying out of the work in these

subjects, therefore, takes care incidentally of an endless number and variety of oral and written reports.

It is probable that relatively little time should be given upon the program to the separate teaching of composition; and that a less quantity of time than is now given should be devoted to the teaching of the English grammar. In general, the composition work would best be the expression work in connection with all of the content subjects; and the grammar work, beyond the minimum essentials covered in the grammar class, should be the attention of the pupils to their language in order to make it as effective and correct as possible,—that is to say, applied grammar. This plan would eliminate that type of composition where the emphasis is upon the form illustrated or studied and not upon the thought presented. It would also eliminate a good deal of the grammar for which the pupils have no practical use. Some of the most difficult things of grammar, for example, relate to speech forms in which children rarely or never make mistakes. As the grammar tends to be applied grammar and related to the oral and written composition, the things not needed are automatically omitted.

VII. SPELLING

In certain of the buildings spelling receives a quite large relative amount of time. In other buildings only a half or a third as much time is given to the subject. In one 6-2 class 150 minutes of class work per week are given to the subject, and in another 6-2 class in the same portion of the city, having practically the same character of population, the amount of time reported is only 35 minutes per week. If the results secured are relatively equal, there is waste of time and effort at one of the schools. If the work in the building employing the smaller amount of time is distinctly inferior to that of the other building, then the amount of time should be increased. The conclusion seems unavoidable that some supervisory adjustment should be made. Just what it should be, however, cannot be determined without a measurement of the results of the work in the two buildings. The Survey has undertaken no such measurements; but the supervisory people by means of a standardized test, the same for both buildings, could easily make determinations. Out of an extension of such measurements to all buildings ought to be found the minimum amount of time necessary for the class-work in the schools in general.

An excellent method of training in spelling that has been well developed in certain of the buildings, and the use of which

should be carefully fostered in all of them is well represented by the advice given in the manual: "The pupils are expected to keep individual or class lists of troublesome words. The realization on the part of the pupil that a certain word gives him difficulty in spelling is the first step in his learning to spell that word correctly."

As a matter of fact it is this aspect of the spelling training to which the most careful attention should be given. Our language is largely phonetic and wide-awake pupils spell most of the words that they use in their writing correctly without any training beyond that of the primary grades. By much correct writing in connection with their composition work, etc., they fix habits of spelling most of their words correctly. Words that they miss should be caught early before habits are fixed in connection with the use of the words. They should find their way into the list of words that need watching, so that a word misspelled once cannot, if proper attention is given to the matter, be misspelled in their writing a second time; or at least not for long.

In the primary grades it is desirable to spell all kinds of words, though usually with the printed or written word before the pupil as he spells. The purpose of this training is to associate phonetic and letter values, and to develop an appreciation of the letter content of words in general. After the third grade, if the written composition work is of sufficient quantity, this appreciation of the letter content of words is well taken care of through the composition. There is little need, therefore, in the case of most pupils of employing time in the spelling class for the purpose.

The word lists presented in the prescribed spelling text, which is universally used throughout the city, are in part made up of words that are phonetic and which are not sufficiently frequently misspelled to justify the expenditure upon them of much class study and recitation time. In part they can be justified as training in the appreciation of the letter content of words; but if the composition work is filled out so as to cover reports on all sorts of themes, thus involving a varied vocabulary, the composition work affords sufficient exercise of this type.

Other words in the prescribed spelling text are those that are misspelled with considerable frequency in the written work of students. They need study by those who misspell them. It is difficult to find any justification of spending time upon them by students who do not misspell them.

It is recommended that previous to assignment of lists of words for careful study a rapid written test covering a fairly large number of words be made; that pupils be excused entirely

from a study of words that are not misspelled; that where a word is misspelled by a very few pupils that it be assigned for the study only of those pupils who have misspelled the word; that class study and recitation be devoted to only those words that were misspelled with considerable frequency by the class; that the place where the mistakes were made be pointed out to the class in their study of the lesson in order that they may know the things for which they must be on their guard; that the work of the recitation be not so much sensory drill in spelling the word over and over again, in ways observed in certain classes, but that it be attention to the hard spots in the words and having pupils point out and explain the things against which they must keep watch; and finally, that the words thus taught should be reviewed in study and class periods occasionally by way of keeping in mind the things learned until habits of correct spelling are definitely fixed in the case of the majority of the pupils.

By this method of elimination far fewer words will need to be taught; they can be taught with greater effectiveness; and much less time need be consumed. In the case of the majority of the pupils, they can be doing things that are more profitable to them.

It appears that the spelling of word lists is now considered the basic training for correct spelling. It is the belief of the writer that the work can be made more effective if the composition work as fully developed is looked upon as the primary exercise in the training of spelling. We find here another reason for a further development of the composition work.

The thing to be aimed at chiefly is to develop a habit on the part of the pupils of watching every word, as they write it, so as to be quite sure that they have it correct before setting it down upon their papers, or before leaving it if it has been written incorrectly. The thing most needed is the habit of looking up words in the dictionary or in their corrective word-lists, whenever there is any doubt in the matter. The certainty that they are going to be caught in case they misspell words and that there is going to be intensive corrective drill on the words that are caught, is a large part of the stimulation to watchfulness.

The plan requires pupil-help in the reading of the papers for catching all misspelled words. It is excellent training in spelling for the readers, however, since it develops exactly the habit desired, namely, the critical habit of looking intimately into the letter-structure of words by way of seeing if they are correctly spelled.

VIII. NATURE STUDY

With very few exceptions elementary science is confined to the first four grades, and does not find a place upon the program during the last four grades. The course of study manual outlines work for all eight grades, covering plant life, sea life, bird life, insect life, pond life, rocks and minerals, and the weather. The work consists mainly of observation and discussion by way of familiarizing children with and making them conscious of common surrounding phenomena of nature. The mode of treatment is of a type that for the most part exhausts the possibilities of the subject by the time the fifth grade is reached. If the work is to continue through the last four grades, different modes of work using different materials become necessary.

In one building the elementary science is given full time upon the program through all of the later grades, and in one of the junior high schools elementary science finds a place in the last semester of the eighth grade. These developments represent a tendency that should be encouraged. The course of work in these later grades should be very different from that recommended in the manual. It should deal rather more with the science involved in the concrete things and concrete situations in which the children are already interested, and with which they are actively concerned in their work, their play, their home life, etc. The elementary science should deal with electric bells, electric lights, telephone, telegraph, batteries, cells, machines, gas engines, the school heating and ventilation plant, the refrigerator, the cultivation of plants in the school and the home garden, the care of the milk supply, the sanitary aspects of the water supply, the protection of trees from the depredations of noxious insects, etc., etc. Practical things and situations with which the children are concerned present the opportunity for a great abundance of vital elementary science work. On this level there should be no great attempt to systematize it unduly. It is mainly a matter of unravelling the science elements as they enter into the many situations, and of seeing them at work. The purpose is familiarity with the endless variety of science matters that make up one's environment.

Naturally the work needs to be rich in actual contact with realities, with observation, experimentation, and actual control of the science factors. The present use of museum materials for the bird and mineralogical study, and of the field observations will be continued. But there is further a large need also of laboratory opportunity. We do not have reference to such systematic work as found in the high-school laboratories, nor to expensive apparatus of the type there used. But to study elec-

tricity, the children do need some common electrical appliances like cells, wiring materials, electric bells, electric light globes, toy motors, etc. A good many of the things can be brought in by the pupils, and others can be made in their manual training hour. In a study of fermentation, sterilization, pasteurization, etc., pupils will need only such containing vessels and chemical thermometers as can be borrowed from the domestic science room. In studying atmospheric precipitation, one needs only a glass or metal vessel of water and a bit of ice. Resourceful special teachers who know science can bring pupils into contact with a large variety of scientific phenomena without elaborate apparatus. Naturally there are certain inexpensive pieces of apparatus that will have to be furnished, and a good many kinds of inexpensive supplies, before the work can be well done.

Very many of the science situations will be met with in the shop, kitchen, and school and home garden work of the children. Some of such science will be observational only. Other portions will be taken up for further laboratory elucidation and analysis. This work cannot be exhaustive or quantitative. The purpose is chiefly to bring children into observant and thoughtful contact with scientific realities so as to develop a familiarity with these realities. If they do not go on to high school they will have some acquaintance with things with which they will have to deal all their lives. If they go to high school, a certain foundational understanding will have been laid for the later more exact and intensive work.

Elementary science is not science unless it deals with realities in ways mentioned. But not all reality can be met with in immediate experience. Very often this latter is chiefly of value simply as supplying the alphabet for a far wider even though more superficial contact with wider reality to be obtained through reading. It is certain that in connection with many of the things studied there should also be a quantity of reading material for purposes of organization of the science involved and for the purpose of extending the pupils' understanding to other related interesting things with which he cannot be actually in immediate contact. As one studies, for example, the protection of trees and plants from noxious insects, it is possible for the children to have only glimpses here and there within the city of the actual ravages of such insects. These glimpses are necessary for an understanding of the general problem, and for giving them a sense of the realities involved. After such familiarity with a few fragmentary instances, they need a few dozen pages of illustrated reading matter which shows the nature of the most important types of insect ravages, the things most often attacked,

the insects that make the attacks, the nature of the injury, the economic and geographic extent of the injurious influence, etc. This larger understanding is the thing chiefly to be aimed at. The simple observations made in field and classroom work are in large measure but preparatory for the reading work that presents the situation in a large and organized way. The same can be said for many of the other science topics. Our science work in the elementary school tends often to be weak largely because we have only the observational glimpses and the random discussion relating to these, and then do not utilize the alphabet of nature thus learned for seeing the wider significances.

A realization of this need for readings is general throughout the city system. In one of the buildings one finds a systematized series of readings supplied in sets large enough for class use, and intended to do for the subject covered the thing recommended in the preceding paragraph. Such books as the following are used: Fultz' "Seed Travelers", Morley's "Butterflies and Bees", Miller's "True Bird Stories", Stoke's "Ten Common Trees", and "Stories for Wonder Eyes". The principal stated that she also wanted a book suited to the interests and maturity of the children upon rocks and minerals, such as she has been as yet unable to find.

For the science work of these grades proper reading materials, well illustrated, are often more important than expensive laboratory apparatus or museum materials. The schools should have these latter things, it is true; but in general, it is not the laboratory side but rather the reading side of the problem that presents the greatest difficulty. The educational profession has not yet developed a sufficient demand for these reading materials, and the natural consequence is that suitable readings on many of the topics are difficult or impossible to secure.

It may be said the teachers would best present the matters orally. To begin with, teachers in general have not the necessary information. They have neither the materials nor the time for getting them; and further, under present conditions they need a type of reading materials for securing the information themselves that is similar in most respects to that needed by the pupils. To leave the matter to the general grade teachers under present conditions is to demand of them the impossible. The work can be done only as it is departmentalized and put into the hands of special teachers who give their whole time to the work.

IX. PHYSICAL EDUCATION

Physical education presents problems of great complexity because the training involves the distribution of duties among

classroom teachers, the physical training department, the school physician, and the school nurse. The work must then look toward building up the individual physically, the formation of right habits, prevention of wrong habits and of deleterious conditions, the giving of information concerning hygiene and sanitation, the generous use of physical play, the use of corrective exercises for those to whom the play is insufficient for physical development, etc.

The field is one in which it is generally recognized that experimental education is the only type that can be considered efficient. The mere memorizing of facts from books is seen to be an ineffective method of accomplishing the ends in view.

On the side of the upbuilding of the individual physically, the program of work in Grand Rapids schools provides for a very elaborate course of formal gymnastics, and a parallel course of plays, games, marches, rhythmic exercises, etc. The formal exercises have been pretty thoroughly systematized and to these the major portion of the time is devoted. The evidence for the relatively large amount of time given to formal gymnastics was obtained chiefly from principals and teachers; it must be stated in this connection that the writer during eight days of visiting schools when they were in session did not observe the use of the formal gymnastics in any of the physical training exercises met with. In almost all cases, the weather being fine, the work was out of doors upon the playgrounds, and consisted chiefly of active games, rhythmic exercises, etc., of the type that has the greater appeal to children, and which are greatly superior for physical development than the formal classroom posturing provided for in the formal portion of the manual. There seems to be a clear tendency toward diminishing the quantity of emphasis to be placed upon the calisthenics, and a large increase of emphasis upon active play. This tendency cannot be too highly commended.

The effective physical development to be obtained through active play has been and is yet in part restricted because of the unsuitability of the physical equipment provided at so many of the schools. Playgrounds in some cases are too small. The board of education in recognition of this fact is at present doing as much as the funds will permit in the way of enlarging outdoor playground facilities. Even more serious is the lack in the majority of the older buildings of indoor play opportunities during those months when outdoor play is in part inhibited by weather conditions. About all has been done by the school authorities that is possible in the way of fitting up basement playrooms. An undeveloped possibility is the use of movable furniture in class-

rooms that will permit a variety of uses of the rooms, including the physical training. The suggestion is more practical for first-floor rooms than for those of the second floor, because of the character of the floors in the old buildings.

All of our large cities are finding that the provision for adequate physical play on the part of children through the entire year is one of the most difficult problems, and one which demands large community investment both in buildings and in grounds. The problem should be solved by the community in connection with the total park and recreation movement, and should not be looked upon simply as a public school movement. Whether an elaborate school plant is economical or not to the community depends upon the quantity of its use on the part of all classes, both juvenile and adult.

In the matter of training the children in the informational aspects of hygiene and sanitation, a reading course in the subject has been provided which covers all of the grades beginning with the fourth. To this it appears that about thirty minutes per week is given in each of the grades. The fourth grade reads an introductory physiology. The fifth and sixth grades read books dealing in concrete interesting ways with personal hygiene and community sanitation. The seventh and eighth grades read a more advanced book of physiology mainly, with some attention to hygiene. In general it is expected that the books be read, understood, and the facts appreciated so that they can be used in the development of habits; but it appears not to be expected that the books shall be memorized and the facts given back to the teacher in the old-type recitation and examination. The reading gives a general over-view of things that should be understood. It makes the necessary suggestions. It intends to develop right attitudes towards the whole matter of personal and community hygiene. The plan is good so far as it goes. But it is insufficient. The thing most needed in the further development of the plan is dependent upon the work of the school physicians and nurses. At the present time the city is very insufficiently supplied with both physicians and nurses. It is these, however (partly through talks to classes, but in larger degree incidentally but systematically and in connection with health supervision) who should keep alive in the minds of the children, and drive home because of the authoritative force of their position, the suggestions and information on hygiene and sanitation that have been met with in connection with the reading covered in the classroom. Just as we are coming to demand that vocational teaching shall be given by people who are practical specialists in the several fields, so we are coming to feel that

the responsible instruction in hygiene and sanitation in its later stages and in part all along the line should be given by those who are felt by the pupils to be thorough and practical specialists in the field. Teaching here should have the sanction of medical authority. In the preliminary readings the teachers can lay a broad and secure foundation for the work. On this, then, physicians and school nurses can build with effectiveness. In the textbooks chosen by the city it is possible that the science motive is relatively too prominent. Children are not introspective. They can best be reached by readings in which the social motive is dominant. Materials of this character are rather rapidly being made available by our publishing houses and by health officials. There can probably be no objection to leaving the science reading in the course as full as at present in the seventh and eighth grades. But other readings should be added which approach the problems more from the social point of view at the same time. Since the subject is more important than grammar, time can be found for the extra reading recommended.

X. MUSIC

No sufficient examination was made of the teaching of music. Only the general outlines of the work were observed. A rather uniform amount of time is given to the subject throughout the various buildings, seventy-five minutes per week being almost universal. The work continues throughout the high school as a full credit course.

So far as possible it appears that the work in vocal music consists of singing. It is built upon the very sound theory that "the only way to teach children to sing is to have them sing." The plan is designed to provide the necessary technical information, but since there are eight years in the elementary grades over which to distribute it, it is possible to give it gradually, to make continual application of it without taking any undue amount of time from that practical application of it involved in the singing by the pupils. The plan appears to be a well-balanced one. The results obtained are proof of the effectiveness of the course.

In addition to the vocal music, full encouragement is given by the schools to instrumental. It is certainly unusual to find within a city of the size of Grand Rapids eight grammar-school orchestras, with an instrumentation ranging from ten to sixteen; then to find further a high-school orchestra in each of the three high schools, with an instrumentation of forty pieces in the largest. Each grammar-grade orchestra is usually made up of pupils drawn from two or three neighboring schools. The result

is that practically every school has a share in an orchestra that can be used for social functions at the school. The work appears to be developing in a very healthy way, and promises a great future for community music in Grand Rapids.

A commendable beginning has been made in supplying the schools with the facilities for the mechanical reproduction of the world's great music. The schools themselves have been raising funds for purchasing victrolas, and the board is expending \$50 per year in the purchase of records which circulate among the buildings. The sets, of which the board has already purchased quite a number, are chosen by the supervisor of music so as to illustrate the different musical forms. They can be used, therefore, not only for appreciation, as the term is often defined, but also for understanding of forms that can be produced in no other way by the limited facilities in the elementary schools. It is possible that the city might do well to be even more generous than \$50 a year, considering the type of cheap music that is so often dinned into children's ears at our commercialized places of entertainment. This is but a small per cent of what the city is actually expending in a single night upon less profitable and less effective juvenile entertainment.

The work in music appears to be proceeding along good lines. The only thing to recommend is further expansion and development of things already under way.

XI. MANUAL TRAINING, HOUSEHOLD ARTS, ETC.

Manual training is given to all of the boys, and sewing and cooking to all of the girls during the fifth, sixth, seventh and eighth grades. The amount of time varies in different schools. The most usual allowance is one hour in the 5-1, two hours in the 5-2 and sixth grades, and two hours and a half through the seventh and eighth grades. In one of the junior high schools, however, it is four hours a week during the seventh and eighth grades, and in another it is five hours per week. As compared with the practice of cities in general, the time given to these subjects in Grand Rapids is quite generous. A comparison of the average amount of time given to practical activities in fifty cities, as reported by Professor Holmes, with the time allowed in Grand Rapids is submitted in the following table. The regular grade buildings are differentiated from the junior high-school work in seventh and eighth grades in the table.

TABLE XXXI

Time Given to Manual Training and Household Occupations.

	Grade Bldgs.	Grand Rapids Junior H. S.	Average Fifty Cities
Grade 5	60	60	50
Grade 6	80	80	57
Grade 7	100	135	72
Grade 8	100	153	74
Total	340	428	253

During the four later grades of the elementary school the city is devoting 35 per cent and in the Junior High School about 70 per cent more time to the practical work of boys and girls than is the average of cities in general throughout the country. This generous time-allowance represents sound and progressive educational policy. The allotment is not too large.

Manual Training for Boys

The manual training for boys in the fifth and sixth grades is knife-work done on trays placed on top of their regular classroom desks. The work is done not in a shop but in the classrooms. This results in economy of building space and equipment. In proportion to the economy thus effected, the character of the work suffers through lack of proper shop facilities.

The knife exercises are directed in all cases by special teachers. These are women. The explanation is again perhaps economy. It would appear that shop-work for boys eleven and twelve years of age should cover exercises representing a variety of mechanical occupations of types usually performed by men, and that therefore the teachers should be men. There is a further reason possibly for the employment here of the women teachers. The work is in no sense of a practical character, and it has little relation to labors performed in any practical vocation, whether of men or of women. It is an abstract school-room affair. It can be handled by women teachers as effectively as by men teachers,—more so perhaps, since they are likely to look upon it with greater good-will. A man teacher familiar with the practical activities of the mechanical world, as such a teacher ought to be, is likely to be sufficiently impatient with this type of manual training.

The material used for the two years of knife-work is thin basswood. In terms of the printed manual, "All of the articles made are of practical use and consist of the following: plant label, twine winder, puzzle, pencil sharpener, calender stand, pencil rack, toothpick holder, brush-broom holder, sled, box, salt-box, ink-stand, picture frame, necktie rack, and book-rack."

All of the things made are small. In only three or four cases is the longest dimension of the object greater than six inches. The sled made, for example, is only six inches long and two and a half inches wide.

Drawings are made of the articles before the article is begun. It is intended that these be working drawings and that the pupils, after the drawings are completed, should work from the drawings. The intent and general relations of this plan is a good one since it properly relates the drawing portion of mechanical activities to the activities themselves.

The work is painfully slow, careful, and expensive. It requires eight hours distributed over eight weeks to whittle from thin basswood a plant label five inches long and one inch wide. Thirty hours distributed over four months are required for making a match box. Twenty hours distributed over two and a half months are consumed in making the toy sled. It is difficult to believe that the drill is of the correct mechanical character for eleven and twelve-year-old boys when so much time must elapse between the beginning and the end of the process. The work is evidently too slow, too painfully accurate for this particular stage of the boy's development, it uses materials that are too small, requiring work that is too fine, and it does not use the woodworking tools that ought to be in the hands of boys at this age. They ought to be in the shop at work-benches with woodworking tools that are very much better than knives for the purpose. Although the manual states that the things made are of practical use, it is doubtful if all of them are. Even when so, it is doubtful if they are made in practical ways,—that is to say, using processes that are of the kind that the practical man would use for making the things in question. And what is more, match-boxes and six-inch toy sleds are not things for healthy twelve-year-old boys.

The present work has many values, both on the side of the drawing and of the practical operations. In all probability the results justify the expenditure of time, effort, and money. It is believed, however, that much larger and more justifiable results could be secured. We would therefore recommend that the present work continue until a better type can be provided; but no longer.

The work of the seventh and eighth grades is in specially equipped shops. The teaching is done by men teachers who have in all cases had practical woodworking experience in the trades. They are primarily practical-minded men and secondarily teachers of the practical subject. This represents sound policy which should obtain throughout all of the grades.

Until recently the work in seventh and eighth grades has

been a rather formal course of the usual bench-work type in cabinetmaking. The course of study manual states the object: "The primary object of all the work in manual training is to assist in general education, and is not planned to be vocational in nature." The term "general education" needs to be reduced to particulars before we can know to what it actually refers. When so reduced to particulars, if the manual training work of these grades does not refer in some way to the vocational activities of the world in general, it is difficult to see at what it does aim. The work at this stage in all probability should be definitely prevocational, the purpose being twofold: (1) to give boys a preliminary acquaintance with the fundamentals of a large variety of the world's occupations for several justifiable reasons; (2) to permit the boys to try themselves out in certain preliminary ways, in labors relating to this variety of fields, as one of several factors involved in choosing a vocation.

Bench work in hand furniture-making has a place, and in a furniture-manufacturing city like Grand Rapids should have perhaps an unusually large place even though in this day of machine methods cabinetmaking is the art of but a very few highly trained specialists. But although such cabinetmaking should have a place, it is very doubtful indeed if so large a relative quantity of time should be given to it during these grammar grades. Such a course largely fails to take care of either of the two purposes stated above.

Recent tendency indicates proper and healthy development. Printing as a form of manual training has been introduced into two of the junior high schools, and in the proper grades. That the more recent conception within the city is that such manual-training activities should be prevocational in character is indicated by the fact that the course of study for printing in the junior high schools was prepared by a committee of practical printers from five of the large printing establishments of the city. This is excellent and represents the proper mode of drawing up courses of training for all kinds of practical activity that may be introduced. It should be said further that the teacher of printing in the Junior High School was associated with this committee of practical printers in drawing up the course, and thus provided the point of view of the educational situation. As other practical courses are drawn up by men familiar with conditions in the practical occupations, naturally representatives from the school organization should also be found upon the committees.

At the Palmer School one finds a practical skilled artisan giving manual training in concrete construction. The boys have

been making fence posts, rustic flower boxes, foot scrapers, square and cylindrical pedestals, concrete blocks and tiles, benches, etc. The work is of a practical character adapted to the maturity of boys of this age, and should be extended as a portion of the manual training in all of the centers, but particularly in the various junior high schools.

In this extension of the manual-training work, one finds also a ten-weeks course in practical sheet-metal working, and another ten-weeks course of forge work for grammar-grade pupils, in one of the junior high schools. These are types of work that properly belong in a well-built-out junior high-school manual training course.

But even this is not enough. It is only a good beginning toward building out the prevocational activities of the junior high school in the degree demanded by the purposes involved. There should also be woodworking on the side of carpentry in addition to the cabinetmaking. This should be of a practical character turning out economic products. On the educational side it cannot be of a proper character unless there is the responsibility for the practical accomplishment of real work. There should also be electrical construction consisting of elementary work in the construction of batteries, wiring, annunciator systems, electric light systems, electric toasters, motor and dynamo construction, etc., etc. There should also be elementary work dealing with still other varieties of building materials, the mixing of mortar, the laying of bricks in simple bond, the mixing of paints and varnishes, the preparation of various surfaces for painting, painting, varnishing, finishing, tile-laying, sidewalk construction, etc.

A valuable part of such a course for boys should be the taking apart and assembling of old machines of all sorts to find out how they work, and to learn the various scientific principles involved in the machines, and the methods of transferring and transforming power through the machines to the final performing of the work. To take apart and assemble a few old automobiles, lathes, pumps, sewing-machines, and other samples from the endless variety of machines accessible should be not only an important portion of one's practical mechanical training, but at the same time should be a highly important portion of one's training in the principles and practices of mechanical science.

For taking care of the prevocational activities of the grammar grades the city is to be commended for having adopted the best possible administrative arrangement for the purpose in its junior high schools. This brings together so large a number of pupils of similar ages and characteristics that it is possible to have a large variety of activities and yet to have classes large

enough to make this variety economically justifiable. Such a variety of courses cannot possibly be developed in the general grade buildings. They cannot afford the equipment, nor the space, nor the teacher-labor for so many types of activity. In carrying out the program recommended the city will find it necessary to continue its present policy of establishing the junior high schools until all of the children of these grades are assembled in schools of this character. Since sixty per cent of them are already so housed the city is in an administrative position to carry out the recommendations for the majority of the boys at the present time.

HOUSEHOLD OCCUPATIONS

The girls of the fifth and sixth grades are taught sewing, and those of the seventh and eighth grades cooking. In the final semester of the eighth grade they are given a further half-year of sewing. All of the work is taught by special teachers, who are in general familiar through practical experience with these two household occupations.

The sewing in large part is the making or mending of garments for themselves, and in part the making of towels, cooking bags, etc., for the domestic science work of the school. The practical purpose vitalizes the work. The writer did not examine into the details of the sewing work, but the outline creates a suspicion that it may be open in some small degree to the same criticisms as the knife-work for the boys of these same grades. To expend twenty lessons of two hours each in the fifth grade in making a percale, gingham, or calico apron and then another twenty lessons of two hours each in the sixth grade in making a plain white percale cooking apron,—or one entire year's work in the making of two aprons,—looks like an over-elaboration of this task. It is doubtful, to say the least whether the schools are justified in making so heavy an investment in training girls at this immature age in fine needlework when most of the sewing that they will later do will be done with machines. The writer wishes here to pronounce no judgment; but only to point out to the school authorities that it represents a problem that should be carefully studied by specialists in the field. In the field of needlework girls need to be trained for the things that they are later going to do. There will be some sewing, patching, mending, etc.; but if the specialization and commercialization of garment-making proceeds much farther, by the time the present generation of fifth and sixth-grade girls have reached womanhood their chief function in this field will be the ability to select wisely and with good taste garments and other articles of

needlework. The thing needed is appreciation and understanding of those things involved in the finished articles, which represent good taste, durability, adaptability to needs, etc., rather than the mechanical ability to make the things themselves.

This changing need is pointed out by way of indicating the need of certain changes possibly in the courses of training. Even though the hand needlework be left as it is, there should be a larger quantity of study of the things that make up different kinds of needlework: studies of color harmony, by having a wide assortment of garments either actual or in color picture-plates for study, criticism, judgment and choice: a study of the simpler principles of garment design, again not through the practical labors of designing but through the study of the particular features of a wide variety of garments; similar studies of trimmings, edgings, embroidery; similar studies applied to millinery; also studies of napkins, tablecloths, bed and pillow coverings, curtains, draperies, etc., etc. The housewife's major problem of today is not how to make these things, but how to select them wisely. To do some work in the way of making them is undoubtedly a portion of the necessary training in appreciation and understanding; but it probably, or at least possibly, should not constitute the major portion of such training.

In case the practical constructive training is of large value for taking care of the appreciation, then the question arises why in the needlework course there is not larger attention in the grammar grades to the making of the following, none of which seems to be included: house dress, street or school dress, napkins, handkerchiefs, pillow cases, sash curtains, table covers, embroidery, laces, etc.

The cooking work of the seventh and eighth grades so far as it relates to activities that can be carried on within the kitchen appears to be much better balanced. It covers examples from about every possible field of food preparation. But in addition to the things done within the kitchen, the girls should also for the sake of the training, do the marketing by way of becoming acquainted with all of the marketing problems. There is also a need of responsibility for turning out a product that is to be used in normal ways. Cooking is not rightly done if it is merely a series of practice exercises,—even though the teacher's supervision and direction be of such a careful sort as to secure the correct material outcome for each exercise. The information is not rightly assimilated nor are right attitudes of mind developed toward the work. Illustrative of the matter was the situation found in one of the large buildings where the girls received fifty minutes of domestic science each day for five days in

the week. In the preparation of very many kinds of dishes, they find it necessary to spend the time one day in the preparation of the things to be cooked, and then after setting them away in the refrigerator for twenty-four hours, on the following day to do the cooking. In other cases they are able to get the cooking half done during the fifty-minute period, but then have to rush away and leave it unfinished; and most half-cooked things are unsuitable for a continuation of the process on the following day. Were the girls in that building preparing actual meals or portions of actual meals, this wasteful and ineffective method of training could not continue for a single day. This appears to be an extreme case, it is true; but where it occurs shows a lack of seriousness in the work; and this lack of seriousness extends to the work of other buildings that have the double period, if there is no method of placing serious responsibility upon the girls.

A further recommendation is the development of the science aspects of the work. At present these are inadequately developed. A portion of such science work should be taken care of by the special teacher of elementary science in the grammar grades, and a portion of it by the teachers of domestic science. During these grades the elementary science work of the girls should be separate from that of the boys, taught always by women teachers who are thoroughly conversant with the problems and exercises in domestic science; and the two departments should be in close co-operation in the conduct of the work.

We recommend also that in the junior high schools a cooking course of suitable type should be opened to the boys. Camp cooking, as it is sometimes called, is both a good and a practical manual-training course for boys. Such courses conducted in former years were successful.

CHAPTER X

INTRODUCTION TO HIGH-SCHOOL REPORT

The following chapter presents in full the report of Professor C. O. Davis on the secondary schools. In addition to the observations made by Mr. Davis, Superintendent Francis rendered a brief report dealing especially with the junior schools. Superintendent Francis comments on the great advantage which Grand Rapids enjoys in the fact that the junior high school experiment is being tried out in a variety of different forms. He believes that this furnishes Grand Rapids with the opportunity of arriving ultimately at the most advantageous form of organization. Mr. Francis commends the organization which he observed so far as the personal characteristics and technical qualifications of the officers whom he encountered are concerned. He comments especially on the fact that the technical teachers are trained in the methods of the industries. He comments on the possibilities of a greater elaboration of the special subjects and greater emphasis upon the general activities of student organizations.

The writer also took the opportunity of visiting the high schools and looked especially into the organization of the junior college and the junior high schools. It is appropriate for him to add to the report of Mr. Davis certain comments with regard to these schools.

In the first place, there can be no doubt, even on casual observation, that the equipment of the Central High School is distinctly superior to that of the other schools. Mr. Davis has brought out in his report the differences between the various schools in detail and has set forth very fully the evidence in regard to teachers and equipment.

The School Board and the school officers may very well consider doing more to equalize high-school opportunities offered in the different centers and also the better standardization of all

the schools. There is abundant evidence in Mr. Davis' report that standards of work are not alike.

The largest credit is due the Grand Rapids System for the organization of junior high schools. The experiment has been worked out in a conservative way. The impressive fact about the experiment is that it was started when there was no general recognition of the importance of this type of organization. To-day it is widely recognized that the sometime break between the elementary school and the high school is un-American and unscientific. Grand Rapids was a pioneer in closing up this breach.

The experiment, as Professor Davis has pointed out, should be pushed further. The curriculum of the Junior High School could very advantageously be elaborated. For example, the work in mathematics might be modified in such a way as to introduce the students to the principles and problems of constructive geometry and to the simpler algebraic devices which make it relatively easy to solve many complicated problems. The equipment for nature study or elementary science of some sort should be introduced as soon as possible into the Junior High School, which is now obliged to utilize the equipment of the Central High School.

With regard to the Junior College, it may be said that the influence of the University of Michigan in the organization of this institution has been very large. The authorities of Grand Rapids have regarded it as expedient to submit all of the details of junior-college organization to the approval of the officers of the University of Michigan. These officers in turn have treated the experiment with much interest but have naturally been very conservative. If the enterprise is to succeed, somebody must be bold enough to set aside conservative suspicion of the experiment. The present organization is shown by the present registration to be unworkable. The effort to segregate the college classes absolutely from the rest of the high-school organization is uneconomical and impractical. This can be illustrated by reference to one example. Junior-college mathematics is analytical geometry. Anyone who wants college credit for mathematics must enter this class in analytical geometry. Some of the students have not had enough mathematics in their high-school course to justify their taking this college course. On the other hand, it is not thought possible at the present moment as a result of the conferences with the University of Michigan to arrange for students to take lower mathematics because it is the accepted theory that junior-college students cannot be in the same classes as high-school students. Thus, a student who ought to be taking trigonometry and is quite prepared for that subject is not allowed to

go into the class in trigonometry and secure college credit, because that is a high-school class. He is introduced into the class in analytical geometry because he is a college student and not because he has had the proper preliminary training. The small junior-college registration makes it impossible to conduct classes both in trigonometry and analytics.

Setting aside the institutional conservatism which always attaches to any new organization, it seems to the present writer, perfectly clear that the only legitimate form of organization which could be developed in the Grand Rapids Junior College is one which allows a student to take that branch of mathematics for which he is equipped. This arrangement would make it possible to utilize the opportunities presented by some of the small advanced high-school classes in mathematics. The character of the instruction would be guaranteed by the general training of the high-school faculty. If there is any doubt about the latter matter or about the ability of the students who have pursued these courses with advanced high-school students to compare favorably with college students, all of the institutions concerned ought to be patient enough to give the matter at least a fair trial. Let the Junior College try the experiment for a year or so. Let the students who go out of the mixed classes be carefully observed in their later college work. If any serious questions arise with regard to their ability to carry college work after receiving this kind of training, let the accrediting of these junior-college courses come to an end. The experiment in its present form cannot succeed. It is cramped and hampered by forms of organization which are not natural or legitimate. To render the experiment absolutely safe against all possible difficulties is to render it so limited in its scope that it cannot be carried on. The fact that the student population in the Junior College has decreased this year as compared with last year indicates that there is something radically wrong.

Another phase of the situation that deserves comment is the tuition requirement imposed by the Board of Education upon students who take junior-college work. First it may be noted that the present tuition does not pay the cost of instruction per student under the present organization. There is some doubt as to the legality of paying for junior-college instruction out of municipal educational funds. This doubt parallels the doubt that once existed in the state of Michigan before the famous Kalamazoo decision with regard to the legality of paying out of municipal funds for high-school education. Some day the doubt about junior colleges will go by the same route as did the earlier doubt about high-school expenditures. It will ultimately be recognized

in Michigan as it is now fully recognized in California, that large municipalities will effect for the people of the city a genuine economy by offering in the city itself educational advantages that extend beyond the high-school course. As Mr. Davis has argued at length, a great many students from Grand Rapids go to colleges in the state of Michigan and elsewhere. For the education of these people the state and the city are making liberal contributions. The cost to the student of a year of college education in some other city is very much greater than the cost of a year in Grand Rapids itself. Such considerations as these ought to weigh very largely with the Board of Education of Grand Rapids in deciding whether it is an economy to offer such young people a junior-college education in their home city. The geographical conditions of California are such that the people have been convinced of the wisdom of establishing local junior high schools. Whether the movement comes rapidly or more slowly in the middle states, it is certain to receive in the next few years a thorough trial. A number of the great municipalities in the middle states are undertaking this type of organization. Grand Rapids in its junior high-school organization and in the elaboration of its high schools has taken a long step in the direction of a complete education of its young people at public expense. The line of demarcation between the elementary school and the high school has been almost entirely erased by the organization of the junior high school. The reasons which justify that intermediate organization can be applied with slight modification to the junior college. The break between the high school and the college is just as disadvantageous as was the sometime breach between the elementary school and the high school. Grand Rapids was a pioneer in organizing the junior high school. It has an opportunity, if it is willing to set aside some of the artificial restrictions which now hedge in its junior college, to become one of the leaders in developing that institution also. It is the belief of the present writer that the city would greatly profit by a thoroughgoing trial of the junior college. Evidence in favor of this move is difficult to present beyond the evidence which Mr. Davis has set forth in his report. Certainly the time has arrived when the city ought to weigh carefully the clear alternative of giving the junior college a fair trial or eliminating it altogether. As the institution stands today, it is weighed down by so many restrictions that it can not be described as a flourishing institution.

CHAPTER XI

SECONDARY SCHOOLS

Calvin O. Davis

FOREWORD

The observations, comments and recommendations included in the portion of the school survey immediately following deal with the provisions which Grand Rapids makes for secondary education within its public school system. This includes the organization and work of the junior high schools, the senior high schools, and the Junior College. The data upon which the deductions are based were obtained by means of questionnaires distributed to the teachers and administrative officers, analysis of printed material pertaining to the organization and administration of the schools, consultations with various members of the administrative and teaching staffs, and eight days spent in actual observation and study of the several schools while in operation. All records, printed material, and other aids which would in any manner throw light upon the plan and conduct of these divisions of the public school work were not only made available for perusal, but the utmost co-operation and assistance was rendered by every member of the school force, in order that a true analysis of the problems under investigation might be reached. Moreover, the most cordial welcome was extended by teachers, principals, and other officials in visiting the several rooms and schools, and the most perfect freedom was encouraged in asking questions not alone of themselves, but of the pupils and assistants under their charge. In this manner frank, full and courteous expressions of views were received from persons of varied interests, experiences, and official rank, and much material for a composite judgment was obtained.

The present report, therefore, aims to be an unbiased analysis of the facts pertaining to the secondary schools of Grand Rapids, (in so far as these facts were derivable from the investigations conducted), and the criticisms, commendations and sug-

gestions offered are the product of the several mutually supporting forms of knowledge that were contributed.

The Secondary School System as a Whole.

An investigator of the Grand Rapids public secondary school system finds, taking the system as a whole, much indeed to commend and extol. It is perfectly obvious to him that the citizens of the town have taken a keen interest in public education; that they have supported, and are supporting, the public schools in a generous and liberal manner; that they believe in school progressiveness, tempered by moderate conservatism; that they wish for their children the best schooling that twentieth century thought can provide and that a reasonable financial expenditure can furnish; that they welcome an expansion and an extension of school work, provided only it be work that promises suitable returns for the investment; that they encourage the aspirations of their children for high intellectual, moral, and social attainments; that they are in favor of reasonably exacting academic and professional standards for their teachers; that they have put in charge of the school work men and women in whom they have, and rightly can have, confidence; and that they are eager and willing to co-operate with the officials of the school in bringing about their educational desires. This certainly is a state of public interest and public responsiveness that is gratifying. Moreover, to a very large degree, much of the school organization and administration in which they take pride is fully worthy of their boasts and loyalty.

Three separate high-school buildings and one separate junior high-school building operating in a city the size of Grand Rapids are more than will ordinarily be found. Moreover, these schools are, in general, well distributed geographically and well situated topographically. The Union school provides convenient and appropriate high-school facilities for the residents of the west side; the new South school performs a like service for the citizens of that section; the Central High and the Junior High schools readily accommodate the youths of the older and more thickly settled portions of the city.

It may possibly be somewhat unfortunate that the Junior High school building is located where it is—particularly if it is to be used solely for the purpose of a junior high school. The section in which it stands borders closely on the business district of the city, a district that seems to be encroaching more and more each year upon the adjoining residential sections. Moreover, the residential portion that remains is composed largely of the older families whose children have, in large numbers, al-

ready received their education and have disappeared from the scenes of their childhood. The constituency, therefore, that maintains the present school has its geographical center considerably apart from the site of the present building.

On the other hand, the present structure is admirably situated and fairly well arranged to serve the entire business section of the city as a trade school and technical school, or a day continuation school. Schools of this character are manifestly about to make articulate their demands for recognition in all progressive school systems. Grand Rapids, considering the nature of her industrial and business life, will of necessity soon be forced to listen to this demand, if locally made, and to plan for it. There can be little doubt that if proper school facilities were provided, and proper arrangements were made with employers in the various stores, offices, shops, factories, and business houses of the city, scores, if not hundreds, of workers now employed therein would take advantage of the offerings and seek to improve not only their occupational training but their interests and powers relating to civic, social, and generally cultural matters. By supplementing the day continuation school work with instruction of a similar character offered in night classes (as at present) the Junior High School building can doubtlessly be made to become the most continuously employed school building of any in the city.

It is, therefore, suggested that the Board of Education, in laying out its plans for the further extension of school work and the further construction of new buildings, take carefully into consideration both the need and desirability of providing somewhere in the city a thoroughly equipped trade school or technical school—for both day and evening classes—and that, secondly, they weigh carefully the advantages that inhere in the thought of converting the present Junior High School building into a school of that sort.

In like manner it seems probable that within a relatively short time additional junior high schools will be needed in one or more sections of the city that are at present without such schools. Doubtless the first new district to be thus provided will be the north side, although, judging from the numbers of pupils at present enrolled from that territory in the existing high schools, the necessity for additional accommodations is not pressing.

Grand Rapids is also to be commended for the form in which it is organizing its school system. The Board of Education and the administrative school officers have, apparently, definitely committed themselves to the principle of the six-year elementary school and the six-year high school, with a junior

college to supplement the work at the top. In adopting this plan of organization the city has put itself in the van of educational thought and practice. There is no longer any question as to the trend of public school organization in this country. The conclusions of physiology, psychology and sociology in respect to the need for the adaptation of our schools to the changing stages of physical, mental and social development of children and youths are clear and certain. The theory of individual differences of powers and aptitudes is today fully accepted. The correlative theory of the need of a differentiation of the subject-matter to be studied and of the method of instruction to be employed in dealing with the several stages of human development is likewise rapidly becoming an accepted pedagogical doctrine.

And yet, while Grand Rapids has definitely subscribed to the more logical, more physiological, more truly democratic form of school organization included in the six-six plan of grade groupings, she has stopped considerably short of what rightfully might be expected of her. The six-year high school as it is in operation in the city today is not fully such a school—if by the expression is meant (as many persons think is meant) not only a change in the *form* of school organization, but also a pretty complete modification of the *subject-matter* to be taught, the *methods of instruction* used, the *mode of administration* employed and the *spirit of control and direction* that dominate. While the steps that have been taken are all in the forward direction, the advance has not as yet carried the schools so far toward the idea of the modern school as the needs of an industrial growing city like Grand Rapids demand or the advice of educational experts recommends. The most glaring faults of omission have to do with the curriculum and its administration. While something indeed, has been done to reorganize the work of instruction, there is surely need for a more thorough overhauling of the entire program of studies—particularly of the program for the seventh, eighth and ninth grades. The detailed analysis of the situation within these grades is reserved for a later section of this report. What, in general, Grand Rapids needs to do, however, to improve her school system is to complete and perfect the organization and forms of administration she has so happily already, in part, begun.

School administration is a dynamic force, not a static one. Forms and processes that serve one generation well, or that fit the conditions of one type of schools or one class of pupils, or that meet the needs of a particular set of concrete problems do not always constitute the wisest and most effective agencies for dealing with school questions arising out of situations that vary

in respect to time and place and human factors. Indeed, quite the contrary is usually true. In consequence no absolutely set and uniform rules of procedure should operate over a large and complete school system like that of Grand Rapids. Instead, free opportunity should be given not alone for the adaptation of general principles to concrete situations as they arise and as the officers in charge may judge necessary, but a constant series of educational and administrative experiments should be authorized and a constant checking over of the meritorious and the disadvantageous results should take place. Such experimentation may be undertaken co-operatively by the several principals, or by the principal and the corps of teachers within a single building, or by individuals within the several schools. The only restraining force that should operate in any given case should be that of balanced reason. Once an individual has been selected to take charge of a given piece of work his powers of free execution should be commensurate with his responsibility. Happily, this principle is one that is generally accepted by the officers of the school system in Grand Rapids, and is in pretty complete operation at present.

Few cities, it would seem, are more fortunately circumstanced than Grand Rapids to carry on a valuable series of experiments respecting the best form in which to organize the work of secondary education, to test practices in the light of results, and to select finally a plan that will give the maximum points of advantage with the minimum points of disadvantage. Incidentally, the city has an opportunity to make real history for herself and to contribute notably to the cause of educational administration in general.

The point about which revolves today a vast amount of unproven and diametrically opposed theory of educational organization is that which concerns the wisest external arrangement to be employed in fashioning the school work. The physically articulated six-six plan, the segregated six-six plan, the segregated six-three-three plan all have their pronounced advocates. No one, however, positively knows which type of organization will yield the best returns. Grand Rapids, therefore, with one school that houses all grades from one to twelve, one that includes (or will include when fully developed) the upper six grades only, one that segregates the seventh, eighth and ninth grades by themselves, and one that perpetuates, temporarily and in part, the old four-year high-school arrangement, but which is designed ultimately to house only the upper grades of the high school—the tenth, eleventh and twelfth grades, with possibly the junior college grades—with a situation of this kind actually existing and with each school serving its constituency reasonably well, it would

seem to be the part of wisdom and of progressiveness to encourage each principal, in co-operation with the superintendent and the board of principals, to exercise wide discretionary powers in the external organization and conduct of his building. Precisely what forms of experimentation such freedom should take in each building will be discussed later.

Grand Rapids may well feel proud of the two new high-school buildings she possesses—the Central High and the South High. They both measure up well to the standards of modern school buildings. The new addition to the Union High is also fully in keeping with the ideals of modern school architecture. As soon as the old central portion of this school is demolished and the sections planned to contain the auditorium, gymnasium, offices and additional class rooms are completed, this building will be not one whit inferior to any of the other buildings. It is a wise move that the Board has made to complete this building at a very early date. It is exceptionally wise that land lying within close proximity to the school has already been purchased and is to be equipped for an athletic field.

The Junior High School building is the oldest and least hygienic and commodious of any in the city. Here material changes are needed and needed badly. Not only is the building extremely overcrowded, but under the present conditions, much of the work is seriously handicapped. The school architect should be asked to investigate the entire situation at once, with a view to relieving such over-crowded conditions as can be relieved, and with the view further of improving unhygienic conditions wherever possible.

There is no question that some of the urgent needs for this building are a gymnasium, an auditorium, enlarged facilities for manual training and domestic science work, a conservatory and museum suited to the work of nature study and elementary science, music rooms, rest rooms for both teachers and pupils, and a magazine and reading room. The Board has provided amply for all these essential school aids in the several other buildings. Equity would seem to call for them here also. It is, moreover, a serious question whether boys and girls of the junior high-school age do not require these agencies for their best development even more than do the youths of an older age. The period of greatest school mortality lies between the fifth and the ninth grades. No doubt many causes enter into the explanation of this fact, but among these surely is the too common one of administrative indifference to the peculiar interests and needs of late pre-adolescence. The kindergartners and primary grade pupils below, and the high-school pupils above, have their especial inter-

ests considered and ministered unto, but too frequently the intermediate school pupil is an institutional outcast—anything that nobody else wishes is thought good enough for him. His case is not infrequently disposed of on the theory that he is not sensitive to the niceties of physical, social, aesthetic, and educational forms and that therefore he does not resent the real, though covert, slight that is accorded his nature.

No greater mistake can be made in dealing with pre-adolescence. Precisely this sort of belief has driven America to the present demand for a reorganization of our school system on some other basis than the old stereotyped, wasteful, discouraging system of tradition. While Grand Rapids, as already has been said, has advanced far on the road of educational progress, she still has provided less generously for the youths of junior high-school age—and especially for the abnormal or the peculiarly individualistic youths of that age—than for any other class of secondary school pupils.

During the present semester (February-June 1916) for example, twenty-five boys from the Junior High School are required to go each day to the Central building in order to secure the manual training work that is desired and is prescribed. The loss in time going and coming is something, but much more serious is the interference such absences make with the smooth adjustment of the class schedules in the Junior High School the hour preceeding and the hour following the class exercise at the Central building. Moreover, the real necessity for these interruptions does not exist. There is ample room on the site of the present Junior High school for an addition to the manual training shops. Indeed, such an addition was contemplated and expressly provided for in the original plan of the Board of Education. Why delay in carrying out the original scheme is continued is not apparent.

In like manner the Junior High School is handicapped for want of an auditorium that will accommodate the entire school—or even a fair portion of it—in assembly exercises, school entertainments, and other school gatherings. The auditorium period is recognized by all educators as possessing opportunities for establishing social ideals, moral impressions, and an *esprit de corps* that no other form of school work can provide. The classroom influences not infrequently soon pass into the realm of untraced oblivion. Not so, however, the lessons vividly stamped on youthful souls in the gatherings of the entire school—gatherings in which participation by pupils is encouraged, and messages from men and by agencies outside the regular school system are offered. The daily auditorium lesson is one of the much vaunted features of the Gary plan, and the values claimed for it

are not overstated, provided the period be properly utilized and directed. If the school is truly to serve as the socializing agency of democracy, then indeed must adequate provision be made for the free and wholesome commingling of pupils in natural ways, and for the development among them of common social ideals, attitudes, and modes of procedure. Through the instrumentality of the stereopticon, the moving-picture, the victrola and the various agencies the pupils themselves develop within the school, invaluable supplementary educational training is secured. The Board of Education can do nothing more serviceable than to build and equip an addition to the present building expressly for auditorium purposes.

The third deficiency in respect to the Junior High School building is the wholly inadequate—not to say, impossible—facilities provided for physical training, gymnastic work, and physical recreation. The room at present used for physical education is small, ill-ventilated, and poorly adapted for such purposes. Despite these facts one has only to observe the work of this department to be convinced of the eagerness with which all classes of students turn towards it and of the physical and moral benefits to be derived therefrom. The state law, moreover, makes it obligatory on every city of 10,000 inhabitants to provide appropriate physical training for all its pupils. Grand Rapids could not, therefore, if it would, legally neglect this side of the school work—and it certainly does not want to do so. Improved facilities, however, are almost imperative. It would, moreover, be a relatively simple matter to add to the present building a section that should give both the proper arrangement for auditorium exercises and for gymnastic work and physical training, together with the indispensable bathing facilities which the twentieth century demands—lockers, showers, tubs, and swimming pools. An arrangement copied, for example, somewhat after the plan employed at the South High School would be feasible and practicable.

An alternative possibility (though of much less merit) in improving the material situation in this school and in relieving over-crowded conditions, is that of removing from the building all existing general administrative school offices, the remodelling of the rooms thus vacated, and the rearrangement of doors, windows and hallways leading thereto. This plan, however, recommends itself solely on the score of immediate economy. To follow it would produce a make-shift of an improvement at best. Much wiser, seemingly, is the idea of doing the job correctly when it is done, and having no regrets. Continuous repairing is sometimes false economy.

The matter of bettering the lighting facilities is a more

difficult one to handle. No doubt, however, a decided improvement in this respect can be suggested by the school architect, provided he is given "free hand so to do."

The material changes in the Junior High School building are needed at present to meet the wants of the Junior High School pupils. If, moreover, the Board shall act upon the suggestion already made, namely, ultimately to convert the entire building into a trade school catering to the demands of industry and commerce and providing an extensive vocational education for the growing numbers of adolescents and adults who are looking to the public schools to furnish them the kind of training they find most necessary and beneficial to them, then an even more forceful reason is at hand for enlarging the material facilities and the scope of the school work to be included in this building.

In considering, therefore, the accommodations for which the several schools of the city must make provision, the following items taken from the enrollment figures for the last six years are illuminating:

TABLE XXXII

Enrollment in Grand Rapids Schools—1910-1915.

Year	Enrollment in Grammar Grades	Enrollment in High Schools
1910	5013	1813
1911	5099	1844
1912	5206	1896
1913	5535	1979
1914	5763	2107
1915 .....	.....	2325

In view of the facts here presented—facts which show conclusively that the enrollment in the grammar and high schools is constantly increasing and that the citizens are apparently both willing and desirous of providing enlarged and enriched facilities for their young people, and in view of the further fact that a recently enacted state law has extended the age of compulsory education to sixteen and has limited the hours of labor and the kinds of employment in which youths may be legally engaged at any time—in view of these facts it seems reasonable to expect that larger and larger numbers of young people will be retained in the schools each succeeding year in the future. Coupled with these conditions is the almost universal agitation for a more complete, systematic education for all members of society irrespective of age, interest and life vocation—an agitation which seems destined to augment greatly both the members for whom schooling must be provided and also the variety of courses that must be organized to meet their needs.

Such conditions will surely make it imperative that addi-

tional school buildings, increased school equipment, varied and enriched programs of study and curricula (particularly on the side of the practical or quasi-vocational subjects), and an enlarged teaching staff shall be planned for the future—even the immediate future—and that steps shall be taken so to distribute the inevitable augmentation of the school budget, incident to the expansion and development of the school system, so that it shall not bear with undue weight upon the taxpayers at any one period of time. It seems, therefore, highly desirable that the Board of Education should adopt a constructive, far-sighted building policy at once,—a policy that shall provide immediately for such pressing needs as are clearly and distinctly apparent and for such expenditures each year in the future as exigencies may require and equity permit.

The policy of allowing each principal considerable freedom in working out with his corps of teachers the program of recitations for his school is in accordance with common practice elsewhere. The freedom to determine the length of the recitation period, and incidentally the length of the school day, is less usual, but can be defended in logic. At the Union School recitation periods are forty-seven minutes in length; at the Junior High they are fifty minutes (having been reduced from sixty minutes this semester); and at the Central High and the South High all periods—recitation, laboratory and shop—are sixty minutes long. In all these schools, except the Union high, a portion of each period devoted to academic subjects is nominally given over to supervised or directed study of the newly assigned lesson. Theoretically this arrangement has the sanction of twentieth century pedagogy; actually it is questionable whether the arrangement is wisest. The sixty-minute class period certainly lends itself to easy administrative manipulation. Double periods arranged only for laboratory work once or twice per week, for shop work, for much of the commercial work and work in art are the worry of the program maker. Where the practice prevails it is almost impossible to devise class schedules for all pupils and to make them workable without inconvenience and annoyance. Moreover, where double periods are in effect there not infrequently is considerable dawdling and sheer waste of time on the part of many pupils, particularly at the beginning and end of the period. Where the sixty-minute period is in vogue pupils and teachers alike “speed up” and accomplish approximately the same amount of work as in the longer double period, and do it qualitatively as well. It is probable also that the fatigue point is not approximated nearly so often under the hour system as under the double period system, for the preventative of fatigue is

change. Certain it is that wherever the single period of sixty minutes was observed in operation in Grand Rapids in connection with shop, laboratory and other practical work, naught but good impressions were left upon the observer.

The sixty-minute recitation study period is, however, something entirely different from the sixty-minute period devoted to manual manipulation. Many European countries, it is true, have for years past employed this unit for class recitations even for the lowest elementary school grades, and have seemed to be thoroughly satisfied with it. In general a part of the hour is given over frankly to relaxation. Furthermore the European school recitations is quite different in character from the ordinary one in America. There teacher and pupils devote the hour, quite generally, to a co-operative development of the topic under consideration. Text-books are few. Oral exposition by the teacher and concerted thinking by both teachers and pupils are the rule. There is, in consequence, little need for independent study when the class period is over. The entire period is in itself a study period—only such additional effort on the part of the pupils being put forth as will organize, clarify, and intensify the impressions already made. In Europe the teachers are expected to teach, not hear classes recite.

Some teachers in the Grand Rapids high schools are capable of using the sixty-minute class periods in the profitable European manner, and do so. Most of them, however, do not so employ it, and it is doubtful if all could profitably do so, if given a free hand. Nevertheless, the so-called supervised study periods of ten or fifteen minutes as now employed in Grand Rapids do not in many instances seem to be justifying themselves. In only one instance in visiting the several schools was there observed any pretence at actual supervision of study. Moreover, teachers frankly acknowledged that they did not attempt to do so except occasionally. When the formal recitation period was past, pupils did, of course, open their books, and went through the form of studying the next day's assignment. In most instances, however, it was a perfunctory performance, and must necessarily have been so, as the limit of time did not permit much more than a beginning of effort. In the meantime, teachers busied themselves at their desks, looked over papers, perused the next period's lesson, or attended to routine matters. The only form of supervision that was carried on was to keep order, and some did not succeed well at that. Moreover, the suspicion was constantly arising in the mind of the observer that pupils who did devote themselves seriously to the task were frequently doing so on the supposition that the few minutes there given to the work would

be all that would be necessary and all that would be demanded by the teacher. Hence, instead of encouraging concentration of effort for protracted intervals and a fair mastery of the lesson assignment, pupils were certainly placed in danger of developing habits of hurried, superficial, slipshod modes of study.

The criticisms directed to supervised study as it seemingly is erroneously styled and carried on in Grand Rapids, do not, however, condemn the entire scheme of sixty-minute periods. The administrative advantages alone will make its retention desirable. But a modification of the manner of using the hour surely is needed. The formal processes of learning or of studying are not so numerous nor so different among the several subjects or the several phases of the same subject as to make necessary the constant personal help of teachers for each individual. Once the pupil has learned to concentrate, to analyze the problem set before him, to apply his past knowledge to new situations, little more is needed or desirable on the part of the teacher than to allow him to exercise his powers. The art of economical effective study is a rare one even for adults, but the art of teaching others how best to study each particular lesson is a still more uncommon one. The danger lies in suggesting too much or too little, in carrying most of the burden for the pupil or in carrying none.

In view of the weaknesses apparent in the administration of the scheme as it is, it seems wiser that the sixty-minute class period be stripped of its positive requirements of supervised study each hour for a stated definite number of minutes and that in lieu thereof teachers be given freedom to employ the entire period for common class activities. The two most serious faults to be found among American teachers—faults observable not infrequently in Grand Rapids—are the failure to knit the entire mass of the day's thought material into a compact unity before dismissing it from mind, and, second, the failure to make the new lesson assignment clear, definite, and truly vital. Classroom recitations and discussions are necessarily fragmentary, disjointed and unsystematized. It is, however, the chief function of the teacher to bring order and permanency of form out of the chaos of impressions, ideas, and responses. In the ideal recitation period each pupil contributes his quota of knowledge, suggestion, interpretation, opinion, and thought, and shares with his fellows and with the teacher the responsibility of developing the topic that is before them—of clarifying the problem that is involved and of advancing it steadily to the point of solution. It is the business of the teacher not only to guide and direct the class activities, but also to supplement, illustrate, expound, and,

above all else, to unify. Hence the need for systematic summarizing of accomplishments in each class period is apparent.

In like manner, ample time should be taken for assigning the new lesson. How many minutes should be devoted to this part of the work the particular circumstances of the hour must determine. Rarely, however, is enough time or attention given to the task. Moreover, it is certain that the greater the thought and care that are employed in this manner, the less labored and more satisfactory will be the recitation work which follows later. Vague, generalized, formal assignments of lessons stamp the teacher as inefficient more positively, perhaps, than any other one test of merit. Yet the fault is fairly common among all teachers. Instead of imitating the successful business man who advertises his goods, makes his show windows attractive, and draws custom by the sheer force of stimulated curiosity, teachers are prone to let the material for study lie embedded in dull textbooks, unmarked by any distinguishing placard, and undiscoverable except as blind chance leads the pupil to begin scratching the surface about it. In consequence of this unpedagogical mode of procedure pupils not infrequently come away from classes with little notion of what the real problem is which is set them, wherein lie the most significant aspects of it, what difficulties of attack beset them, and how they should most effectively proceed to master the work. The result is unintelligent effort, waste of time, and moral discouragement on the part of many pupils. A further result is failure to comprehend the thought in class the following day, lack of responsiveness, irritation with the teacher, growing dislike for, and indifference to, school work in general, and finally withdrawal from further attempts at any systematic education. It is certain that pupils frequently have failed to meet the standards because they have not known clearly what was expected of them, nor how to proceed to the undertaking. No pattern was set before them, no device for whetting the interest was employed with them, no motive for exerting their best efforts was instilled into them. They merely failed in their tasks because others who were supposed to know what was best to do had failed in their tasks.

The above reflections are given not with the intent of condemning any teacher in the Grand Rapids school system, but to emphasize the great need of stressing each day both the processes of unifying and of summarizing what already has been studied and discussed in class and the necessity of opening vistas through the mass of new material presented and of motivizing the reactions that are desired. Many teachers do these two things even under the present organization of the school work, but it seems rea-

sonable to suppose that, if the brief study periods attached to each recitation hour were eliminated or improved, and if sympathetic supervision of the teachers is given (as at present) by principals and heads of departments, that a more uniform and satisfactory observance of these pedagogical practices would result. In place, then, of the brief, broken and, for the most part, *unsupervised* (i.e. unassisted) study periods following each recitation, two or three such periods of full 60 minutes each may well be substituted in the schedule of work for each pupil. It surely would be more economical to employ a study-hall teacher who can simultaneously take charge of two hundred pupils, if need be, than for each teacher in the system to devote one-fourth of her time to the task, particularly when the additional time may be profitably used for class teaching. Moreover, unless the several fifteen-minute study periods that are at present provided can readily be increased to double or triple their length by means of the double recitation period arrangement for all classes, better results, academically considered, can surely be expected by making the change.

The sixty-minute class periods and the general organization and administration of the several high schools resulting therefrom are also making for a desirable modification in the length of the school day. If the ideal be accepted that the public schools shall, as far as possible, not only prepare pupils for the conventionalities, relationships and activities of the business and social life of the times, but shall also be so organized that they epitomize the world of adult life, then it follows that the habits of thought and of action demanded by the world of affairs shall be implanted and developed in the institution selected by society for that purpose, namely the school. With business and industry rapidly being organized on the basis of an eight-hour laboring day, it surely seems anachronous to organize the school work on the basis of a much shorter working day. Not that any teacher nor any pupil should be expected to devote the entire eight hours to exacting, uninterrupted, intellectual application. Precisely at this point lies the danger of the proposed change, and it should be frankly recognized and avoided. The drain upon the physical and mental energy of a truly live enthusiastic teacher is unappreciated by any save those who have experienced the work. Five hours in the aggregate should surely constitute the maximum daily assignment for any person, two hours of shop, laboratory and supervising activities being considered the equivalent to one hour of purely classroom work.

In like manner, pupils who carry five subjects requiring extensive study and preparation outside the class period should be forbidden to elect additional work of a similar character. But

by arranging and administering the courses in physical training, art, music, and the industrial and commercial subjects so as to bring change and variety into the daily program, by distributing the periods of recitation, study, recreation, assembly meetings and manual activities, for both teachers and pupils, so that the fatigue point is not reached in any type of work, an eight-hour school day can not only be made possible but feasible and desirable. The officials of the school are earnestly advised to consider the inauguration of the plan.

Just as a longer school day seems about to be accepted as an established policy in educational administration, so likewise an increase in the length of the school year is being made in many cities and towns in the land. Hitherto the added portions have not, it is true, been considered an integral part of the regular academic year, but have been attached as auxiliary or supplementary work during the summer vacation. There is, however, much supporting evidence that the hour is at hand when the more progressive school authorities are about to organize all public education on the basis of a continuous twelve-month course. The advantages of an arrangement of this kind are so obvious that it is truly strange the plan has not been adopted long before the present date. Just as the proposal for a longer school day does not contemplate that teachers or pupils shall be driven any more urgently or be burdened with heavier tasks than at present, but merely that a greater degree of flexibility of administration shall be secured for all and that the sum total of effort shall be distributed throughout a longer period, so likewise the longer school year aims in no manner to impose uncompensated additional tasks upon either those who are teaching or those who are being taught. In all probability, a four-term arrangement of twelve weeks per term will appropriately be substituted for the present scheme of two semesters of eighteen or twenty weeks each. For those whose physical and mental strength and interest make it practicable and safe to remain in school throughout the four terms, opportunity will be provided; for those who may desire or require a term's vacation annually, biennially, or less often, arrangements precisely as at present can be made.

When consideration is given to the facts that for many pupils both of secondary and elementary school age the long summer vacation is both unneeded, if not positively detrimental, whether viewed from the standpoint of physical health, mental energy, or moral development; that the present school law in Michigan absolutely forbids any one under the age of fifteen engaging in lucrative work even during the summer vacation period, and hence makes these months loafing times for many a

boy and girl; that pupils who have been forced to be out of school for considerable portions of time during the regular year and who have consequently failed to pass in some part of their school work, can find no better agency than the vacation school to help them gain standing again; that ambitious pupils of robust health can easily gain sufficient additional credits in the vacation school to enable them to shorten their high-school course, often by one entire year; that pupils who find difficulty in carrying successfully the customary four units of work per year, may, by pursuing only three subjects simultaneously in the regular year and supplementing these by work in the vacation school, still maintain their full class standings; that many pupils have, in cities in which vacation schools have been maintained, voluntarily and eagerly enrolled for the work, partly, no doubt, because of the opportunities provided therein for social, recreational, and athletic intercourse, as well as partly for the sake of the personal academic advantages to be derived; that many teachers welcome the chance to increase their annual income through engaging in vacation school work; and that the continuous employment of school buildings is vastly more economical to the taxpayers than to have them closed for two or three months—consideration of these facts, involving, as they do, numerous advantages both social and personal for the city, certainly argue strongly for the establishment of vacation schools in a city situated and populated as is Grand Rapids. If it seems to the Board of Education not feasible at the outset to make such schools an integral part of the regular school year, the establishment of them as supplementary undertakings is thoroughly justifiable and highly commendable. The recommendation is, therefore, earnestly made that provision for high-school work (as well as elementary-school work) be made during the summer vacation months for the children and youths of Grand Rapids. The further recommendation is made that morning sessions only be held, thus preserving to pupils a daily half holiday and freeing them from forced application during the portions of the days most apt to be sultry and hot. A still additional recommendation is that the recreation facilities of the schools—particularly the outdoor facilities such as the athletic fields and play grounds—and the shower baths be made as available to the youths and adult residents of the city in vacation time as during any other period of the year.

One further phase of the general educational situation found in Grand Rapids calls for brief comment, but comment by way of commendation only rather than by way of critical suggestions. This pertains to the spirit of co-operation and the plan for mutual constructive study, by the several high-school principals, of the

entire administrative problems relating to secondary education in the city. The principals' meetings, wherein are threshed over and winnowed the wheat and the chaff of business incident to the conduct of the schools, not only largely explains the harmony that, in general, characterizes the work of all the administrators, but bespeaks for the future continued growth in the efficiency of the schools, obtained (as it should be obtained) under conditions varying with each school and each principal, but natural and appropriate to each separate organization.

In like manner the several types of associations or teachers organizations within the several buildings are highly commendable,—the faculty meetings, the departmental staff meetings, the meetings of heads of departments. All these indicate that self-analysis and self-improvement (so far as the school as an institution is concerned) are dominating characteristics of the officers and teachers throughout the secondary school system, and that the efficiency and work of the schools, as a whole, are their impelling thoughts.

Finally the type of printed bulletins, reports, courses of study and other matter designed to make significant to patrons and pupils the purposes, organization, and work of the schools is of the best. Clear, brief, intelligible are words that characterize them all—the Superintendent's Annual Report, the bulletins of information, the records, cards and similar material.

The Junior High Schools.

Grand Rapids is at present in the midst of a transition period in school organization. Although the work of the seventh and eighth grades is still provided in numerous ward or elementary-school buildings, much of it has been taken away from its traditional settings and is being organized under the form and the name of secondary education. A portion of the work thus transferred is being combined with the work of the ninth grade and is being offered in a building separate and distinct from all other school work. This building is styled the Junior High School. The remainder of the work thus removed from the ward buildings is not so completely segregated from the upper grades but nevertheless is sufficiently isolated to warrant treating it as part of the junior high school. It is therefore the purpose of this section of the survey to deal with the work of the seventh, eighth and ninth grades wherever they are apart from the six lower grades of the school system, and the expression "junior high schools" has been selected to include all such separate forms of organization.

As thus described, the junior high-school organization in

Grand Rapids is certainly justifying itself. The fact that within five years the enrollment in one school—the segregated junior high school—has increased from 435 pupils and a teaching force of 13 teachers in September 1911 to an enrollment of over 800 pupils and a teaching staff of 33 in April, 1916, is highly significant. Moreover, when the further fact is noted that a very large per cent of the increase in numbers since 1911 consists of boys, the evidence is strong that the junior high-school organization is accomplishing one of the greatest services schools are designed to accomplish, namely, making education so attractive and consciously beneficial that youths will continue in the schools for as long a period of time as their physical strength, mental capacities and economic resources will permit.

The statistics pertaining to the other two schools in which the seventh and eighth grades are organized as junior high-school grades tend to bear out the same conclusions. The increased attendance at the Union School and the South School has been almost phenomenal. At the Union School, too, the number of boys exceeds the number of girls and has done so for the last few years. Even in the graduating class this fact holds true, there being in the graduating class of 1916 eighty-one pupils, of whom forty-five are boys and thirty-six are girls.

In variety and range of the subject-matter offered in the junior high-school grades, a notable advantage over the undifferentiated elementary-school work is secured. Here many types of interests are taken into account—academic, manual training, domestic science, artistic and commercial. As the schools continue to develop, additional forms of work or at least more differentiated courses of the work at present offered, will doubtless be provided.

Yet in the face of the facts that the organization of the work of the junior high schools is considerably different from the traditional forms in which seventh and eighth-grade work has been cast, still some strange, almost anomalous, conditions are met with here. The conviction is deep and strong that while the ideal of a thoroughly reorganized, modernized, psychologized school has been sought in modifying the work of the seventh, eighth and ninth grades, many of the elements and characteristics that seem to be absolute essentials to a completely formulated junior high school are either lacking entirely or else have been put into operation in a very inconspicuous manner. A vision of the "school of tomorrow" has undoubtedly been had by the authorities and administrators of public education in Grand Rapids, but it is equally clear that many old-time traditional forms and practices (some of which are educationally questionable, others

of which are educationally obsolete) are holding tenaciously in administrative procedure. What is distinctively needed, therefore, in the junior high-school work in Grand Rapids, is an effort to *carry through* to completion the reforms that have already been so well begun.

In particular, it is very certain that there is not in operation in the junior high schools the degree of administrative flexibility that the democratic ideal of the twentieth century extols, nor that the economic, industrial and social conditions of Grand Rapids require. Especially is this noticeable in reference to those pupils who belong to the group of the intellectually slow or non-literary people and to those whose educational careers are in all probability to be terminated at a relatively early date. In other words, whatever flexibility is provided operates to the greatest advantage of those who need it least, for those whose school courses are projected some distance into the future and who are definitely planning them, albeit there is also some need in Grand Rapids for more careful attention to the interests of the supernormal pupils.

The dominant idea that underlies the reorganization of the seventh and eighth grades of tradition is that of providing differentiated school work to meet the peculiar needs of the differentiated individuality that characterizes the age of early adolescence, and not, as heretofore, to prescribe the same cultural elements for all alike. In other words, the true purpose of the junior high school is to furnish a testing-place and a testing-time wherein each boy and girl may be led to discover for himself or herself the really dominant and abiding elements of his or her personal strength, and, once having found these sources of happiness and service, to be assisted in developing them to the fullest possible degree which time and circumstances will permit. The junior high school, under this view, is therefore a school which aims to serve the needs of youths while they are passing through the transition stage of rather complete school dependence to rather complete school independence. It seeks to close the gap that heretofore has yawned between the elementary school and the high school, and it seeks to do this by providing a three-year period in which gradually to make the adjustments necessitated by the changes in subject-matter, methods, and administration that are incident to the change in schools. The new ideal contemplates a rather complete modification of the traditional program of studies, the organization of differentiated curricula, some freedom of choice by the pupils of the subject-matter to be studied, provision for the differentiation of work among different class sections pursuing the same subject, comparative ease of

transition from one course to another, much attention to individual aptitudes and individual limitations, and emphasis upon general principles of knowledge concretely developed rather than upon isolated elementary facts, on the one hand, or abstract, specialized knowledge, on the other. The junior high schools in Grand Rapids, as already implied, meet these standards only in part. The detailed analysis that follow seek to justify this contention.

Consider first the subject of English. Most leaders of thought dealing with the teaching of the vernacular language and literature are a unit in the belief that detailed and exhaustive courses in formal English grammar—particularly during the early years of school life—are a waste of much precious time for both teachers and pupils alike, discouraging and distasteful requirements for many types of youths, and to a large degree failures in effecting the ends for which they are designed and presented. The true aim of the teaching of English in the junior high school, as elsewhere in the school system, is to develop the power of clear, forceful, facile, and pleasing expression of thought, both oral and written; to stimulate the taste for good literature and the power to interpret it fairly when read; and to give a knowledge of worthy masterpieces in literature and the power to discriminate wisely among the mass of contemporary writings of our own day. It is doubtful if formal grammar serves as the best means for developing the ideals that are sought in the work of English, particularly when taught as an isolated subject considerably apart from its concrete connection with daily human expression and current readings. As presented by many teachers, it is treated as an end in itself, not as a means to a more noteworthy end. The true way to acquire habits of correct oral and written speech and the power to analyze the thought of literary selections is by speaking, writing and analyzing repeatedly and doing so under the stress of current needs or real motives, not in a formal, abstract manner under circumstances that are artificial and forced. In like manner the way to develop refined taste and true appreciation of literature is by the repeated study of works of literary merit, following always however the universally accepted pedagogical law of proceeding slowly and gradually from the child's immediate interests to the interests of more mature life, and providing constantly for variety of form and subject-matter in the studies that are presented.

Although in the junior high-school work in Grand Rapids these ideals and maxims are acknowledged in theory, they are not actually put into operation in practices so fully as seems desirable. Throughout the seventh and eighth grades formal English

grammar is prescribed for every pupil, except indeed, the few whose linguistic attainments have been sufficiently satisfactory to permit them to be enrolled in courses in Latin or German. Even then, however, fifty per cent of the time allotment is expected to be used for work in English grammar. Except at the South High School, every pupil of the seventh and eighth grades, whether possessed of literary interests or not, whether his stay in school is destined to be brief or prolonged, is required to devote five periods per week to grammar coupled with composition work and work of oral expression. In addition, except at the South High School, supplementary work to the extent of three, four or five periods per week are prescribed for reading, spelling, and writing, in the ratios of 3:1:1. Approximately eight or ten periods, therefore, of the usual allotment of twenty-five (except at the South High School) are taken up with what may be styled work in English.

Much of the teaching of grammar that was observed was good, and pupil responses not infrequently were highly creditable. Nevertheless, for many students, it was evident that the subject was of little interest and of doubtful profit. They pursued it because they were forced to pursue it, but evinced a spirit that betokened a withdrawal from school as soon as the power of the compulsory school law was lifted. In like manner, much of the "Reading" was truly a study of literature for its content value, but in as many instances the aim seemed to be to stress form and fluency only—and even this was not well done in some of the classrooms visited. Moreover, there was little freedom accorded the teacher in the selection of the material to be studied. Elsen's Third and Fourth Readers are, assuredly, text-books of merit, but much of the material they contain is unappealing to many students. The wonderful riches of some of America's magazines of today, a few of the worth-while contemporary books of adventure, fiction, biography, history, and description, and some of the excellently arranged supplementary school readers certainly ought not to be excluded from the course nor be forbidden, or unknown, to the teachers and class,—an ideal which, happy to say, an occasional teacher of English in the junior high school grades has already, though perhaps unofficially, sought to realize.

Educational theorists have for some time contended that six years devoted to the formal aspects of reading, writing and spelling are sufficient to give to all normal children the fundamentals of those arts, and that whatever additional training is provided should be secured incidentally in connection with the teaching of content studies. Why Grand Rapids, in view of these established theories, should continue to so large a degree to adhere

to traditional practices is not clear. While stressing so much the formal aspect of English there surely is a diminution of time available for the content side. Moreover, the question persistently arises: Are ten periods (or even seven or eight periods) per week devoted to English in all its phases the best possible distribution of time for *all* types of mind, or even for the majority of pupils of the two grades under consideration? May not the policy of allowing certain pupils of keen language interests to substitute Latin or German for formal English grammar be a wise policy to adopt (the work to be substituted being altered) for other types of pupils, that is, for those who do not profit greatly by any formal language study? May not, in concrete, a course in business English, shop English, conversational English, magazine English, or a course embodying elements from all such fields, be fittingly employed more freely than at present?

Undeniably one's own vernacular language and literature are pre-eminently important for each person. Hence some type of a course in English should be pursued by every pupil in every grade in the junior high school. But it is seriously questioned whether much of the offerings and prescriptions in English in most of the junior high schools of Grand Rapids is the best and wisest. What a large number of seventh and eighth grade pupils will find most valuable, there is evidence to believe, is a course in which literary selections are largely taken from current writings dealing with science, nature, industry, travel, biography, history, current events, social questions, stories and fiction, and in which the expressional work, both oral and written, is based upon, and motivated by, the impressions gained through the study of such selections and through the common everyday experiences of life. True development in language power comes from having something to say and a motive for saying it forcefully, fittingly, and understandingly. It appears, therefore, convincing that much of the work in English in the seventh and eighth grades needs to be analyzed critically and reorganized sympathetically. The teachers of Grand Rapids have in the past worked out co-operatively some very satisfactory courses of study. It would be advantageous if they should undertake anew a revision of the work in English.

Similarly, the organization of the work in mathematics in the junior high schools is not in full accord with present-day psychological and sociological theories, nor with the practices of many of the most progressive schools of America and of foreign lands. Except for a small group of pupils of superior mathematical ability, the offering in this subject are confined entirely to arithmetic, and, nominally at least, to the formal, more or less

unvitalized arithmetic of the typical text-book kind. In some classes, it is true, supplementary arithmetical work of a concrete, practical character is presented, but it is introduced more or less unauthoritatively, is in the form of additional work, not substitute work, and, at most, is given apparently a rather inconspicuous place in the program.

Here, again, flexibility of administration of the school operates for the benefit of those who need it least. The youths who do well in formal mathematics, who are planning to continue their schooling in the senior high school and perchance in college, are allowed to enter upon the study of algebra a year or a half year earlier than they naturally would under the old traditional arrangement. The youth who has little interest in mathematics and who perhaps is not especially proficient in the subject is kept droning over the same type of material which he has sought to work through since almost his first entrance into school life. Why such an individual should be forced to thresh over old straw when it is apparent the effort is yielding little profit or returns is an unanswered question. To reiterate a statement which has once before been made in this report, the ideal of the junior high school is to provide a testing-place for pre-adolescent boys and girls who are seeking to discover themselves. Striking individual differences are known to characterize the young people of this stage of development. The demand on the schools, then, is to provide for these differences—just as surely and effectively for the ones who have brief educational careers before them or are not distinctively literary minded, as for those with a long school course ahead of them or who are particularly interested in traditional school materials. It is true, principals have the authority of excusing from the specifically outlined courses of study such pupils as are found to be wholly unsuited to pursue them, but the power is exercised very infrequently. Only the unusually retarded and exceedingly undeveloped pupil is thus irregularly classified. Provision in which the uniform prescriptions are wholly ignored or radically modified for entire sections of pupils is unknown.

Moreover, why the simpler processes of algebra—in particular the knowledge and use of the simple algebraic equation—are denied any pupils whatever in the seventh and eighth grades is surely inexplicable. Why the beauties of form and the graphical representations of space as revealed in constructive geometry are never, or rarely, made a part of the instruction in these grades is mystifying. Practical mathematicians have repeatedly urged the advantages of the more elementary and fundamental portions of these two branches of mathematics over much of the arithmetical

material that is incorporated in our school work. Teachers and administrators of experience have many times discovered the fact that pupils inapt and dull in dealing with relatively complicated arithmetical processes and problems have entered with avidity upon the study of algebra or geometry and have shown unexpected ability in the new work. And yet, in spite of these established facts, the school authorities in Grand Rapids adhere to the policy of withholding these subjects from pupils of the seventh and eighth grades until after they have completed the customary stated amount of formal arithmetic in those grades. On the other hand, the authorities swing to the equally indefensible extreme of absolutely prescribing an entire year's work in algebra for *every pupil* before he completes the junior high-school course and before he is admitted to full senior high-school rank. Absolutely to require algebra of all ninth-grade pupils is a survival of traditional practices and can not be justified in a secondary school system designed by a democratic society to meet the practical, educational and social needs of young people of all types of mind and many kinds of vocational interest. A complete over-hauling and reorganization, therefore, of the course in mathematics in the junior high school is imperatively needed, and is earnestly recommended.

The teaching of Latin and German in the seventh and eighth grades is commendable. Foreign language study as a field of youthful exploration surely demands a place in a school that aims to serve as an institution of introductory secondary training. It is a well-accepted pedagogical principle that the most appropriate time in which to begin the pursuit of a foreign language is in the earlier years of life, before marked self-consciousness has become an inhibitory factor in expression and before sensitiveness to the misuses of the conventional forms of speech is acute. Foreign language study should not be substituted, however, for the single course in English recommended above, but should be an elective subject for such pupils as may, after consultation with teachers and principal, decide to select it. Moreover, since the dominant purposes of the elementary courses in language study is to test linguistic capacity, the work should be made as inviting as that of any other elective subject. It is therefore doubtful if school credit should be withheld from pupils who pursue the subject one year and then discontinue it for reasons that are pedagogically satisfactory. To do so discourages the timid student, though possessing unknown language interests, from electing the courses at all, and encourages the mediocre pupil, who somewhat early in the work discovers his inaptitude for it, to continue his unprofitable efforts for the sake of insuring the little credit

he has already conditionally earned. Persistency of application and continuity of undertaking are assuredly qualities of habit formation that need to be cultivated in the schools. But there is no great educational value in continued and continuing defeat. "Nothing succeeds like success" is a maxim venerable by age, but the opposite statement is equally true, that Nothing fails like failure. Schoolmen need to appreciate this fact, and while not making the irregular transition from course to course an easy transition, yet they should not penalize too heavily the one who, for valid reasons, finds such change conducive to his best interests. In fact there is much to be said in favor of a general course in foreign language in the seventh and eighth grades, the same as a general course is fashioned in science or mathematics or any other subject. Few, if any, pupils know, or can know, with any degree of certainty whether it would be wiser in their particular cases to pursue Latin or German or French or Spanish. A course that should extend over two years and should open vistas of thought and knowledge respecting the country, the people, the civilization, the language, the literature, the history, of each of the four nations of Rome, Germany, France and Spain, would, logically and psychologically considered, have much merit. The dabbling for two years in each of several languages has been the weakness of much of our educational administration respecting language study. What is demanded is the reduction of the period of dabbling to the lowest valuable minimum, and the extension of the period of continuity of study to the longest realizable maximum. A two-year general linguistic course in the seventh and eighth grades would effect the first desideratum; the building upon this course for four or more additional years—if language study were to be continued at all—would effect the second ideal.

The idea here advanced does not, of course, contemplate a five months' course in each of the four languages. What is advocated is rather a course *about* foreign languages and the peoples who use them than a course *in* several foreign languages. Such a course would seek to adduce facts of geography, history, literature, beliefs, customs, and institutions of the several foreign nations and to *focus* these on the question of language. The work should, for the most part, be conducted in English, with incidental use of foreign terms and expressions by way of illustrations, and should make extensive use of maps, pictures, charts, lantern slides and blackboards. The aim of such a course would be to enable pupils to know—as well as such a course could lead them to know—the essential differences and striking characteristics of form to be found within the several languages, the purpose and significance of foreign language study in general, and

in what respects each particular language possesses advantages over the other languages as a subject of formal study for high schools, if any pupil should elect later to pursue a course in foreign language study intensively. Furthermore, a course of this type might be expected to yield some power of appreciation of the culture and civilization of foreign peoples—the chief, though often unrealized, end of more extensive foreign language courses in senior high schools and colleges. The time allotment of such a course might properly be twice per week.

A course of this kind is confessedly open to the criticism that it is not primarily a course in foreign language, but is historico-sociological material. That criticism, however, holds equally validly with regard to a large portion of the material which enters into nearly every course in foreign language study in schools and colleges. The distinctive merit of a general course over the typical traditional introductory course in foreign language study is its frank acknowledgement of emphasis upon *content* values rather than *form* values. The object of the course would, therefore, be realized if pupils who pursued it were guided fittingly in selecting, or omitting to elect, formal courses in language study later in their high-school years. Moreover, to make a course of this kind at all profitable would necessarily call for the services of no immature person as teacher, but one who has travelled extensively, studied deeply, and lived broadly. Such persons would not easily be found, but they are procurable. The entire idea, though perhaps novel, is not wholly idealistic. It has its prototype in certain "appreciation courses" to be found in several schools of the United States. Nevertheless, the idea is advanced not as a recommendation for permanent adoption but as a plan for a promising experiment. The measurable results of its operation would give justification for its retention or give warrant for its abandonment. Should any youths discover their true language bent before the completion of the course as planned they most assuredly should be permitted to pursue formally the language of their choice.

The work in history in the junior high school grades also needs revision. It certainly is doubtful whether ancient history in the ninth grade is the most inviting, valuable or appropriate course for pupils of that stage of development. "Ancient Misery" as one pupil styled it, it certainly is for many young people. The events described are so remote in point of time, the treatment of the topics is frequently so needlessly and discouragingly detailed, and the articulation of the subject-matter is so often so loosely made with the present-day interests of boys and girls that the subject makes little or no gripping appeal to large numbers of

them. Moreover, the ninth grade is a grade so critical for school mortality that wisdom would seem to dictate that whatever work in history is offered here should be organized with the thought pre-eminently in mind of interesting pupils and developing in them a love for historical study.

In place, then, of ancient history with its many unsatisfying and unsatisfactory results a course that may fittingly be styled *elementary social science* may with wisdom be substituted. Such a course should aim to connect the pupil intimately and consciously with the institutional forms about him and to make him sensitive to the contemporary demands of society upon individuals, and conversely with the influence that individuals are daily exerting in modifying institutional and social agencies and processes. Such a course might appropriately begin with a study of local history as it is related to world history of the last century; might build on this foundation an elementary knowledge of political economy and commercial and industrial history and sociology; and culminate in a survey of the political, industrial and cultural activities and agencies of Grand Rapids. Throughout the course stress should surely be laid on the question of vocational choices and vocational guidance in much the same manner in which work of this nature is at present so admirably done throughout the school system.

Precisely as in respect to the other introductory courses advocated in this report, the successful administration of a course like the one sketched here will require that no novice or young college graduate be placed in charge of it. The judicious teaching of history at any stage in the school calls for a relative maturity of judgment and an experience with the world of social intercourse which few persons under the age of twenty-five can possibly have acquired. What particularly is needed at this period of the pupils' development is a teacher whose chief concern, to paraphrase a much-used thought, is to teach boys and girls and not merely the subject-matter of the books.

Undoubtedly the elementary course in United States History and Government in the eighth grade is fittingly placed where it is. In a system of schools that is supported by the state emphasis should surely be placed on the development of the intelligent and law-abiding citizen. Little argument, therefore, is needed to justify the inclusion of a systematic course in the history of our own country. The correlation, too, of history and geography in the seventh grade is clearly feasible.

The one serious criticism that might be directed to the organization of the history work of the seventh and eighth grades is that no provision is made for the presentation or study of the

great, significant world movements of all time, nor for the systematic study of the notable human characters who have played their parts therein. True it is that biographical studies do constitute a part of the offerings in the earlier years of a pupil's schooling in Grand Rapids but in the nature of the case they can, below the seventh grade, include little else than the more striking characteristics of personality and the more simple events in the lives of heroes and heroines. Biographical studies as an agency for revealing the great revolutionizing, social forces that have been operating in world history since its beginning, must necessarily be deferred to a somewhat later period. At twelve or thirteen years of age, however, pupils have reached the stage when they are intensely interested in human beings not only as human beings, but also as authors and interpreters of social processes. Here, then, is a time in which historical studies centering about notable men and women can have a wonderfully appealing influence. Moreover, unless pupils of this age are given the opportunity to get acquainted with the great significant human movements of the entire past, many of them, because of their withdrawals from school, will never learn of them in any systematic way. It seems reasonable, therefore, to urge that instead of devoting so long a period as three semesters, with some portions also of another semester, to United States History in the seventh and eighth grades, that a course in world history through biography be provided. This could well be placed in the second half-year of the seventh grade or possibly in the first half-year of this grade. Within the course biographical studies and correlated social events like the following might well be included (without intending to be either dogmatic or complete in the selection of topics): Khufu, Nebuchadnezzar, Solomon, Cyrus the Great, Xerxes, Confucius, Lycurgus, Pericles and the Golden Age of Greece, Cincinnatus, Hannibal, Pompey, Julius Caesar, Augustus Caesar, Alaric, St. Benedict, Mohammed, Charles the Great, Alfred the Great, William the Conqueror, Robert Bruce, Joan of Arc, Frederick Barbarossa, Peter the Hermit, Lorenzo de Medici, Marco Polo, Martin Luther, Queen Elizabeth, Philip II of Spain, William the Silent, Mary Queen of Scots, Gustavus Adolphus, Cromwell, Marie Antoinette, Napoleon, and Bismarck.

The importance of the study of history in a civilization such as ours is today and the disfavor in which the subject is at present held by many pupils in the schools gives warrant for experimentation in the work wherever it can be done. Wherever courses similar to the one advocated here have been provided many favorable results have been obtained, as witness for example the work in Berkeley, California. The recommendation is, therefore,

that principals be authorized to test the merits of the plan if occasion permits and conditions favor.

Elementary science, in the most wonderful scientific and industrial age of the world's history, should need little argument to justify its claim for a conspicuous and permanent place in the curriculum of a school that professes to be (as has repeatedly been said) a school for laying foundations in differentiated knowledge and powers. A course of this kind has recently—second semester 1914-15—been put in operation in the Grand Rapids system. However, in two of the schools it is allotted but two class periods per week; is, in the third school, planned for a single semester's election; and is generally available only for those pupils who have completed the first half of the eighth grade and have passed all subjects therein with term grades not lower than "G"—the second highest grade given in the school system. Here, again, is seen the operation of the principle already several times pointed out as being in effect in Grand Rapids, that "he that hath, to him shall be given: and he that hath not, from him shall be taken even that which he hath." The youth who is interested in things, who is eager for something concrete and tangible, who yearns for that which is different from the linguistic, arithmetic, grammatic studies, and who perchance does not sustain himself especially well in the work of those branches is repressed, discriminated against, and not permitted to test his capacity and strength in what might prove to be the most attractive and profitable field of all for him. Grand Rapids needs therefore to expand, liberalize and popularize the course in general science in the junior high school and make it available, if not compulsory, for all pupils in regular standing in the eighth grade. Particularly does the industrial character of the city make such a course one of the minimum essentials of the training of all its future citizens.

The work in physiology as at present given is exceedingly lacking in uniformity and in seriousness of presentation. Merely to make it a reading lesson in connection with the work in English, as it is in several of the sections, is to take from it its dignity as well as much of its worth. Especially true is this statement when the reading lesson is conducted almost solely for the sake of formal values and with little attention to the content side of what is read. The work should either be given over entirely to the director of physical training, or be incorporated in the course in elementary science. If it is to be taught by the several teachers of reading as at present it certainly should be raised to a higher plane of worth and merit.

The work provided in manual training and domestic science

and arts, is adequate and calls for no especial comment. The plan of giving each boy and each girl an elementary acquaintance with four aspects of the two general lines of work respectively (woodworking, machine shop, forge or metal work, and printing for the boys; and sewing, cooking, millinery, and household designing for the girls) is an arrangement that is in perfect harmony with the ideals of what the character and functions of a junior high school are. The flexibility of administration of the various divisions of the work and of the several sections of pupils in each is highly commendable. In like manner the provision for special, short-time, or intensified courses in printing, commercial work, manual arts, and other school subjects to meet the needs of pupils with peculiar school interests and limited economic resources is to be approved. The single recommendation that is to be made respecting the administration of such work is that the authority to enroll pupils in the several more or less irregular courses be exercised by principals, not necessarily more frequently than at present but perhaps more willingly and less reluctantly, whenever the circumstances of individual pupils seem to warrant granting deviations from the standard arrangements.

Whether, too, pupils in the eighth grade in *all* the schools and not alone at the Union School, ought not to be permitted to elect some work in the commercial department—at least to the extent of testing out their interests in this field the same as in any other—is a fair question to raise. There seems to be no valid reason why they should not do so, and, indeed, several positive arguments why they should. In the first place commercial work well taught possesses unique educational value of its own, the same as any other subject; secondly, the opportunity to elect a single course in commercial work each term of the seventh and eighth grades would tend to retain in school some who otherwise would possibly withdraw when occasion permitted; and thirdly, it would enable some pupils to lay the foundations for specific vocational work while continuing to pursue somewhat longer a generally cultural course. It is, therefore, recommended that the school authorities organize the work so as to make some courses in commercial branches elective to pupils below the ninth grade in all the junior high schools.

The work in music and art, though somewhat limited in amount for the pupil in the general course, is doubtless adequate considering the demand of other subjects. In the department of art in particular the instruction is chiefly of an individual character and hence pupils may advance as far and as rapidly as their several talents permit.

All factors considered, the program of studies provided for

the junior high schools of Grand Rapids is as varied and extensive as can usually be found in a city of approximately one hundred and twenty thousand people, and, so far as the range of offering is concerned, it is about as suited to local needs as the economic resources will permit. The chief defect is, as stated at the outset of this section of the report, too little flexibility of administration. The reorganization and readaptation which Grand Rapids has gradually been introducing during the past several years has not gone forward either sufficiently far or sufficiently rapidly. The interests and desires of the fortunate few who have pretty definitely selected their courses in school and perchance in life, and those who have rather superior intellectual ability on the whole are well and adequately provided for. The youths who possess no decided bent in life and who are striving desperately to discover themselves, those who are somewhat indifferent to the traditional offerings of the school and yet are decidedly not stupid nor lazy, and those who are perhaps of mediocre intellectual ability and yet are sufficiently ambitious to seek to attain to an education commensurate, at least, with high-school graduation—for all these types the administration of the program of studies works not infrequently to a disadvantage. The provisions already made for the accelerant groups and for the retarded groups should be continued, but similar attention should be given to the peculiar individual needs as they are discoverable among the great mass of normal pupils.

For the sake of comparisons there are inserted here the programs of study for the intermediate schools (junior high schools) as they are in operation in several cities of the country.

Solvay, N. Y., Intermediate Schools

7th and 8th Grades

Open to All Pupils Who Have Finished the 6th Grade

ACADEMIC COURSE

(Modern Language)

Formal English	{	Composition—oral and written
		Grammar
		Good usage

Literature

German

Arithmetic and introductory mathematics 7th grade

Algebra and geometry (Introductory) 8th grade

Physiology and nature study 7th grade

Biology 8th grade

American and current history

Commercial and industrial geography

Practical and household arts

Gymnasium

Drawing (Appreciation)

Music

Penmanship

BUSINESS COURSE

Formal English { Reading
Spelling
Grammar and composition

Literature
Commercial arithmetic and bookkeeping
Physiology and science 7th grade
Biology 8th grade
American and current history
Commercial and industrial geography
Typewriting
Practical and household arts
Drawing and appreciation
Music
Gymnasium for girls
Penmanship

ACADEMIC COURSE

(English)

English { Writing
Appreciation—reading selected stories
Oral and written composition
Memory selections
Correct usage
Technical grammar
Spelling

Arithmetic: applications of percentage and mensuration
Physiology and nature study
American history. Preparation to pass regents' examinations
Commercial and industrial geography and review of geography for
regents' examinations
Manual training and mechanical drawing
Household science

Open to Pupils 12½ Years Old

PRACTICAL ARTS

For Boys

Formal English { Reading
Spelling
Grammar and good usage
Composition, oral and written

Literature (Appreciation)
Arithmetic and mechanical drawing
Physiology and general science
American and current history
Commercial and industrial geography
Shop
Music
Penmanship

HOUSEHOLD ARTS COURSE

For Girls

Formal English	{	Reading Spelling Grammar Composition
----------------	---	---

Literature
Arithmetic
Physiology and general science
American and current history
Commercial and industrial geography applied to household management
Drawing and appreciation
Music
Cooking
Sewing
Gymnasium
Penmanship

VOCATIONAL COURSE IN GENERAL INDUSTRY

For Boys

Formal English	{	Reading Spelling Grammar Composition
----------------	---	---

Arithmetic and mechanical drawing
American history
Commercial and industrial geography (alternate years)
Shop drawing
Shop practice

VOCATIONAL COURSE IN HOME MAKING

For Girls

Formal English	{	Reading Spelling Grammar Composition
----------------	---	---

Applied arithmetic and bookkeeping
History
Industrial geography and textiles
Citizenship and hygiene
Plain sewing and dressmaking
Cooking
Home furnishing and decoration
Costume design and millinery design
Household economics.
Household science
Home nursing
Music
Physical training

READJUSTMENT YEAR

9th Grade.

PREPARATORY COURSES.

Formal English	3-3	First column refers to number of 40-minute periods per week.
Literature	2-2	
German	5-5	
Introductory mathematics	2-2	
Biology	5-5	
Current history	2-2	Second column refers to school credits.
Drawing	4-2	
	<hr/> 21	

(Regents' counts, 16 or 17.)

The work of the 7th and 8th grades of the Academic Modern Language and Mathematics Course may be accepted in place of the 1st year high school or 9th grade work of this course.

COMMERCIAL COURSE.

Formal English	3-3	Typewriting	2-1
Literature	2-2	Penmanship	3-1½
General science	5-5		<hr/>
Current history	2-2		19½
Elementary bookkeeping	5-5		

The work of the 7th and 8th grades of the Business Course may be accepted in place of the 1st year high school or 9th grade work of this course.

PRACTICAL ARTS.

Formal English	3-3	Mechanical drawing	4-2
Literature	2-2	Shop	8-4
Mathematics (Shop)	2-2		<hr/>
Current history	2-2		20
General science	5-5		

The work of the 7th and 8th grades of the Practical Arts course may be accepted in place of the 1st year high school or 9th grade work of this course.

HOUSEHOLD ARTS.

Formal English	3-3	Dressmaking	5-3
Literature	2-2	Drawing	4-2
Current history	2-2		<hr/>
General science	5-5		20
Cooking	5-3		

The work of the 7th and 8th grades of the Household Arts Course may be accepted in place of the 1st year high school or 9th grade work of this course.

INTERMEDIATE SCHOOLS—LOS ANGELES, CALIFORNIA.

Course of Study for Term Beginning September, 1912.

GENERAL COURSE—REQUIRED SUBJECTS

Seventh Year		Eighth Year		Ninth Year	
English	5	English	5	English	5
Arithmetic	5	History and Civics	5	Physical Training	2
Geography, B7	5	Physical Training	2	Music or oral	
History, A7	5	Oral English, B8	2	English	2
Physical Training	1	Music, A8	2		
Music	2	Physiology and			
Drawing	2	Hygiene	2		
Penmanship	2	Manual Training:			
Manual Training:		Girls: Cooking	2		
Girls: Cooking	2	Sewing	2		
Sewing	2	Boys: Wood-			
Boys: Wood-		work	4		
work	4				

ELECTIVE SUBJECTS

Select 1 of the following:		Select 2 of the following:		Select 3 of the following:	
French	5	French	5	French, German,	
German	5	German	5	Spanish or Latin	5
Spanish	5	Spanish	5	Bookkeeping	5
Latin	5	Latin	5	Stenography	5
Bookkeeping	5	Bookkeeping	5	Algebra	5
Stenography	5	Stenography	5	Com. Arithmetic	5
Note: Two languages may be selected only by permission.		Mathematics:		Ancient History	5
		Arithmetic, B8	5	General Science	5
		Algebra, A8	5	Select 1 of the following:	
		Drawing:		Manual Training:	
		Freehand or		Girls: Cooking	5
		Mechanical	5	Sewing	5
				Boys: Wood-	
				work	5
				Drawing:	
				Freehand or	
				Mechanical	5

TRENTON, N. J. INTERMEDIATE SCHOOL.

7th Grade

English	4 hours
English or Foreign Language	4 hours
(Pupils taking English have 3 (½) Hr. periods on typewriter.)	
Geography and History	4 hours
Science	4 hours
Mathematics	4 hours
Academic Hours	20

Shop	4 hours
Drawing—(1 one-hour period)	3 hours
Gymnasium—(2 one-half hour periods)	2 hours
Music—(2 one-half hour periods)	1 hour
Shop hours	10
Total hours	30

8th Grade

English	4 hours
English or Foreign Language	4 hours
(Pupils taking English shall have 3 one-half hours periods on the typewriter.)	
Geography and History	4 hours
Science	4 hours
Mathematics—(Including Elementary Business Forms)	4 hours

Academic Hours	20
Shop	4 hours
Drawing—(1 one-hour period)	3 hours
Gymnasium—(2 one-half hour periods)	2 hours
Music—(2 one-half hour periods)	1 hour
Shop hours	10
Total hours	30

9th Grade

Academic

English—4 hrs.
Foreign Language—4 hrs.
Science—4 hrs.
History and Civics—4 hours.
Mathematics—4 hrs.
Shop—4 hrs.
Drawing—2 hrs.
Gymnasium—3 hrs. (2 1 hr. periods.) (2 ½ hr. periods.)
Music—1 hr. (2 ½ hr. periods.)

Commercial

English—4 hrs.
Bookkeeping—4 hrs.
Science—4 hrs.
History and Civics—4 hrs.
Mathematics—4 hrs.
Typewriting—4 hrs.
Drawing—2 hrs.
Gymnasium and Music (As in Academic Course.)

Industrial

English—4 hrs.
Science—4 hrs.
History and Civics—4 hrs.
Mathematics—4 hrs.
Shop—6 hrs.
Drawing—4 hrs.
Gymnasium and music (As in Academic Course.)

Each day consists of six periods of sixty minutes each.

Work in science and mathematics will demand separate classes for girls and boys. Mathematics will not necessarily be the same for all boys and girls in the same year.

OUTLINE OF COURSE OF STUDY IN THE GRAND RAPIDS, MICHIGAN, JUNIOR HIGH SCHOOLS

7-1 Grade

English (E 1)	5
Arithmetic (M 1)	5
Geography (G 7)	4
Reading (R 1)	1
Bench Work (Sh 1)	3
Dom. Science (D S 1)	3
Dom. Art (D A 1)	1
Printing (Print 1)	1
Music (Mu 1)	1
Art (Art 1)	1
	<hr/>
	21

Elective and Special

Business Arith.	5
Applied Eng.	5
Latin (L 1)	5
Mech. Draw.	2
German (G 1)	5
Chorus or Orchestra	2

8-1 Grade

English (E 3)	5
Arithmetic (M 3)	5
American History (H 2)	4
Reading (R 3)	1
Shop Work (3)	3
Dom. Science (D S 3)	3
Dom. Art (D A 3)	1
Printing (Print 3)	1
Music (Mu 3)	1
Art (Art 3)	1
	<hr/>
	21

Elective and Special

Latin (L 3)	5
German (G 3)	5
Mech. Draw.	3
Business Arith.	5
Applied Eng.	5
Chorus or Orchestra	2
Printing	5 to 25
Dom. Art	5 to 10
Art	5 to 10
Metal Working	2
Elementary Science	2

7-2 Grade

English (E 2)	5
Arithmetic (M 2)	5
American History (H 1)	4
Reading (R 2)	1
Bench Work (Sh 2)	3
Dom. Science (D S 2)	3
Dom. Art (D A 2)	1
Printing (Print 2)	1
Music (Mu 2)	1
Art (Art 1)	1
	<hr/>
	21

Elective and Special

Business Arith.	5
Applied Eng.	5
Chorus or Orchestra	2
Printing	5 to 25
Dom. Art	5 to 10
German (G 2)	5
Latin (L 2)	5
Mech. Draw.	3

8-2 Grade

English (E 4)	5
Arithmetic (M 4)	5
American History (H 4)	4
Reading (R 4)	1
Shop Work (4)	3
Dom. Science (D S 4)	3
Dom. Art (D A 4)	1
Printing (Print 4)	1
Music (Mu 4)	1
Art (Art 4)	1
	<hr/>
	21

Elective and Special

Latin (L 4)	5
German (G 4)	5
Mech. Draw. (2)	3
Business Arith.	5
Applied Eng.	5
Chorus or Orchestra	2
Printing	5 to 25
Metal Working	2
Dom. Art	5 to 10
Art	5 to 10
Elementary Science	2

9-1 Grade

English (E 5)	5
Algebra (M 5)	5
Ancient History (H 5)	5
Latin (L 5) or (L 5a)	5
German (G 5) or (G 5a)	5
Pen. and Spelling (P & S)	5
Physical Geography (S 5)	5
Bookkeeping (Bk 5)	5
Dr. & Shop (5)	5
Freehand Draw. (Fh D 5)	2½
Domestic Art (D A 5)	5
Physical Train. (Ph Tr 5)	1

9-2 Grade

English (E 6)	5
Algebra (M 6)	5
Ancient History (H 6)	5
Latin (L 6 or L 6a)	5
German (G 6 or G 6a)	5
Physical Geography (S 6)	5
Bookkeeping (Bk 6)	5
Dr. & Shop (6)	5
Design (Des 6)	2½
Domestic Art (D A 6)	5
Physical Train. (Ph Tr 6)	1

Note 1: This course of study in 7th and 8th grades is offered only in those schools that have departmental organization of those grades.

Note 2: The number opposite each subject in the outline indicates the number of recitations per week or the credit toward graduation.

Note 3: The symbol in parenthesis indicates the abbreviation for the subject and the number of the semester in which it is given counting from the 7-1 grade.

Grand Rapids, in the junior high-school work, has very wisely departed from the uniform five-period per week schedule for all classes. The essential ideal in a school of the kind under consideration is multiplicity of reactions, an attainment of many kinds of intellectual and emotional experiences, and not so much completeness of knowledge or depth of insight. Hence it follows that pupils should be encouraged to pursue several subjects simultaneously and not limit their work to a relatively small number of studies. Nevertheless, physical and mental efforts have their limitations. In consequence the alternative is either a few subjects pursued somewhat intensively through daily recitation periods or a larger number of subjects pursued less often than five times per week. What should be the minimum number of weekly class periods allowed to any pupils of normal health has never been scientifically determined. In Germany, in secondary schools, youths of the age of junior high-school pupils in America are required to carry thirty, thirty-one, or thirty-three periods per week. In France and also in several other European countries the number of class recitation periods is approximately the same. It seems very reasonable to think the American boys and girls are able to carry a like number of periods and that they should be expected to do so.

In order to administer the junior high school with the degree of flexibility that has been advocated throughout this report—looking carefully after the interest of each individual, providing for accelerant groups, retarded groups, differentiated groups among pupils of normal capacities but varying interests, permitting the election for extra credit of supplementary courses in

Latin, German, general science, and other subjects—in order to administer such a program with any degree of ease and satisfaction, it seems both necessary and desirable that the “point” system of recording credits should be adopted for the seventh and eighth grades the same as for the upper grades of the high school. In lieu of the present requirement of 150 points for graduation a total of 250 might justly be prescribed, 100 of these nominally to be acquired in the lower grades of the junior high school. Indeed there is much to be said in favor of organizing the entire work of the seventh and eighth grades on the principle of minimum essential prescriptions for all pupils and optional electives beyond these. At the present, such modifications as are permitted in the selection of courses come about for the most part as substitutions for other or traditional courses, and not usually as additional courses. In other words, bright, ambitious pupils who look ahead of the present moment and seek to accumulate sufficient credit by extra efforts to permit them to shorten somewhat the period usually needed for graduation from high school, have no definite assurance that the additional efforts will be specifically recognized in any formal manner except in respect to work in Latin and German. Thus, for example, pupils who devote much time beyond what is prescribed to art, drawing, manual training, domestic science and art, commercial work, and general science do so wholly gratuitously. Granted that, ideally speaking, all persons should undertake works of supererogation, if for no other reason than the subjective effects such efforts have upon the actor, nevertheless the schools are organized on a definite basis of attainments, marks, credits, promotions, and graduation, and pupils recognize the fact as clearly as do teachers and administrators. A policy of the sort advocated should stimulate to effort many a person who can only with difficulty be reached in any other manner.

The plan, too, of conducting graduating exercises at the completion of the eighth-grade work is unwise. The custom is a survival of a practice which had some justification at a time when few expected to continue their schooling beyond the eighth grade and doubtless needed the stimulus of the prospective honor to hold them to their educational work even through this grade. Today different traditions and the operation of the state compulsory school law make the retention of the custom unnecessary. To perpetuate it is to continue to accentuate the notion that the completion of the work of the eighth grade marks a natural stopping point in schooling. The effect of such exercises is likely therefore to be diametrically opposed to the spirit that has produced the junior high school. Certificates indicating the comple-

tion of the elementary course may with full propriety be issued at this time, or at the end of the junior high-school course, but public graduation exercises can most wisely be eliminated entirely until the senior high-school course has been finished.

The wisdom of segregating pupils by sexes in certain subjects has not as yet been so fully tested in American schools as to make the policy thoroughly defensible. There is, however, much to be said in favor of following the plan. For example, the idea of providing separate sections for boys and girls in eighth-grade arithmetic offers many advantages. Boys could then be given instruction and drill in problems that relate specifically to boys' interests or to interests that boys will be apt to follow when men. In like manner the work for girls could center about the problems of the home and woman's work in general. The work in drawing and designing lends itself to a similar kind of administration; while the segregation of pupils in study or session rooms has been practiced in some cities for years. It is, therefore, recommended that the principals take up for consideration the idea of putting into operation the plan of sex segregation in certain lines of work and arrive at some definite conclusions for themselves.

A later section of this report considers the question of teachers and their qualifications. It is, however, appropriate here to raise the question of the ideal for teachers in the junior high school. There is no valid reason why teachers of departmentalized seventh and eighth grades should not possess precisely as thorough a training, both academic and professional, as the teachers of the other grades of the high school. Indeed there are positive reasons why it should be so. It seems appropriate to insist that teachers of these two grades should possess unusual ripeness of experience both in life in general and in school work, vigorous health, commanding presence, inspiring personality, sympathy, and an abiding interest in boys and girls of the early adolescent period. There are probably no grades in the entire school system that lay heavier burdens upon a teacher than the seventh and eighth grades. The lower grades may require of her peculiar traits of natural ability; the upper grades may demand of her a knowledge of science and philosophy; but the seventh and eighth grades exact of her the qualities of studied and ripened art. In the senior high school success may come to a teacher who teaches well her subject; in the seventh and eighth grades success will come only when the teacher teaches well her pupils.

It follows, therefore, that none but the scholarly person of mature experience should be put in charge of the grades under consideration—none but the person who not only is a fair master

of the subject-matter she teaches and who can grasp it in its entirety and diversity, but who also can relate it artfully to the life experiences of youths who are just beginning to discover themselves in a world of reality and ideality. It matters but little in education how the finishing touches are given to a pupil's development; foundations on the other hand are all important. The task of introducing pupils for the first time to new lines of thought and responses calls for the highest skill, as most college presidents and school superintendents and principals of experience can readily testify. The green, callow youth, perfect it may be in the knowledge of the subject to be taught, but ignorant of the deeper meanings of life and life's relations, will serve the cause of education vastly better if put in charge of advanced rather than beginning courses. From the typical young A. B. student who is fresh from college the junior high school should forever be delivered.

In developing the junior high schools Grand Rapids has, at least in part, seemed to keep this ideal before it. The decision to employ henceforth none but college-bred teachers for any grade above the sixth grade, is eminently wise and proper. The further decision to put these teachers on the same salary basis irrespective of the grades in which they teach is likewise sound economy and sensible pedagogy. The additional determination to require teachers to assume charge of classes in several distinct grades—from the seventh to the twelfth—and to break down any false notion of superiority in rank solely because of the teaching of advanced pupils is wholesome and wise.

Grand Rapids has adopted a humane and sensible policy in not unceremoniously eliminating from the school system old and faithful teachers who do not quite measure up immediately to the new standards. Time and opportunity for making readjustments must be permitted. For teachers who are temperamentally unfitted for departmental work in the new system, or who by reason of years can not prepare themselves for the new tasks, or who prefer to continue in undepartmentalized rooms, transfers of positions must be made. The schools exist for the pupils, not for any body of teachers or administrators. Change of system works hardships in all forms of activity in which it is carried out, but so long as care is exercised to minimize the disadvantages to the lowest possible degree no just complaints can be imposed.

Hence the Board of Education will do well to grant leaves of absence to such teachers as seek them, to the end that they may pursue, if they desire, academic and professional work at normal schools or colleges, and thus fit themselves anew for retention in the school system. Meanwhile, it will be wise for

heads of departments in the senior high schools to exercise supervisory control over the work that is carried on in the junior high schools. Departmental staff meetings, at which shall be included teachers of the same subject in any of the grades above the sixth, should certainly be held at frequent intervals and a spirit of solidarity, homogeneity and co-operation should be developed.

The provisions at the present time in operation for meeting the needs of pupils in recreational, social and quasi-academic forms are, for the most part, appropriate and adequate in each school. Departmental clubs; literary, dramatic and musical societies; opportunities to develop interest and initiative in co-operative undertakings relating to school publications, school assembly meetings, and school parties are numerous. Physical training and facilities for securing physical recreation are being given the attention they deserve. The one most serious lack in respect to this matter is found at the South High School. No playground or athletic grounds are available for the pupils of this school. And yet directly opposite the building toward the north on Hall street is an exceptionally well-situated vacant tract, approximately a quarter of a block square, that would meet the needs of the school admirably. Steps should be taken immediately to secure this tract of land, or some other convenient tract, for an athletic ground for the pupils of this school.

By way of reiteration and summary, therefore, the most urgent need that exists with reference to the program or course of study in the junior high schools is a more extensive and freer exercise by principals of the authority to arrange special classes for special types of pupils and to administer the work in the regular courses with a greater degree of attention to individual interests. That is, the pupil who is out of step with the other boys and girls in the school, the pupil for whom the traditional classification, the traditional methods of instruction are ill-adapted if not wholly unsuited, should, so far as practicable, be treated on an individual basis and in the manner that his peculiar interests necessitate. This implies certainly the organization of accelerant groups of pupils, but it much more surely contemplates the plan of substitution, as occasion demands, of some or all of the following courses for the regularly scheduled correlative courses, namely: business English for English grammar; business or household arithmetic for traditional mathematics; history of industry, commerce and the domestic arts for traditional political history; specific trade subjects for general courses in manual arts or domestic arts; and courses in musical and literary appreciation. School credit for out-of-school work of varied and suitable kind may also wisely be granted.

The Senior High School.

Grand Rapids has made provision in three separate centers for the work of the upper three grades of the high school, albeit the new South School is as yet not fully organized. Each of these schools aims to be a cosmopolitan high school. Each, however, emphasizes certain types of work that the others do not and in this manner serves its particular constituency in an appropriate manner.

In the range of subject-matter, in the intensiveness or continuity of offerings and, in general, in the results obtained little more than words of approval and commendation can be spoken. There is some doubt whether the most desirable forms of organization and the wisest modes of administration are always to be found. This section of the report therefore deals principally with these phases of the work.

OUTLINE OF COURSE OF STUDY IN THE GRAND RAPIDS, MICHIGAN, SENIOR HIGH SCHOOLS

10-1 Grade		10-2 Grade	
English (E 7)	5	English (E 8)	5
Public Speaking (7)	1	Public Speaking (8)	1
Algebra (M 7)	5	Ancient History (H 6) or European History (Long Course) (H 8)	5
Ancient History (H 5) or European History (Long Course) (H 7)	5	Latin (L 8) or (L 8a)	5
Latin (L 7) or (L 7a)	5	German (G 8) or (G 8a)	5
German (G 7) or (G 7a)	5	Agriculture (Agr. 8)	5
Agricultural Botany (Agr. 7)	5	Botany (S 8)	5
Botany (S 7)	5	Zoology (Z 8)	5
Zoology (Z 7)	5	Physiology (Py 8)	5
Bookkeeping (Bk 7)	5	Bookkeeping (Bk 8)	5
Dr. & Shop (7)	5	Dr. & Shop (8)	5
Freehand Drawing (7)	2½	Design (Des 8)	2½
Dom. Science (7)	.	Dom. Science (8)	5
11-1 Grade		11-2 Grade	
English (E 9) or (E 9a)	5	English (E 10) or (E 10a)	5
Geometry (M 9)	5	Geometry (M 10)	5
European History (Long Course) (H 9) or Euro- pean History (Short Course) (H 9a)	5	European History (Long Course) (H 10) or Euro- pean History (Short Course) (E 10a)	5
Latin (L 9) or (L 9a)	5	Latin (L 10) or (L 10a)	5
Greek (Gk 9a)	5	Greek (Gk 10a)	5
German (G 9) or (G 9a)	5	German (G 10) or (G 10a)	5
French (F 9a)	5	French (F 10a)	5
Spanish (Sp 9a)	5	Spanish (Sp 10a)	5
Chemistry (S 9)	5	Chemistry (S 10)	5
Commercial Law (C L 9)	5	Industrial History (I H 10)	5

11-1 Grade—Continued

Typewriting & Stenography (T & S 9a)	5
Draw. & Shop (D & S 9)	5
Mechanical Drawing (9)	5
Domestic Art (9)	5
Freehand Drawing (Fr D 9)	2½
Oratory (P Spk 9)	2

12-1 Grade

English (E 11) or (E 11a)	5
Solid Geometry (M 11)	5
American History (H 11)	5
Latin (L 11) or (L 11a)	5
Greek (Gk 11a)	5
German (G 11) or (G 11a)	5
French (F 11a)	5
Spanish (Sp 11a)	5
Physics (S 11)	5
Economics (Econ 11)	5
Typewriting & Stenography (T & S 11a)	5
Draw. & Shop (D & S 11)	5
Mechanical Drawing (11)	5
Housekeeping, Domestic Science (D S 11)	5
Debating (P Spk 11)	2

11-2 Grade—Continued

Typewriting & Stenography (T & S 10a)	5
Draw. & Shop (D & S 10)	5
Mechanical Drawing (10)	5
Domestic Art (10)	5
Design (Des 10)	5
Oratory (P Spk 10)	2

12-2 Grade

English (E 12)	5
Trigonometry (M 12)	5
American History (H 12)	5
Latin (L 12) or (L 12a)	5
Greek (Gk 12a)	5
German (G 12) or (G 12a)	5
French (F 12a)	5
Spanish (Sp 12a)	5
Physics (S 12)	5
Salesmanship (S'h'p 12)	5
Typewriting & Stenography (T & S 12a)	5
Draw. & Shop (D & S 12)	5
Mechanical Drawing (12)	5
Home Economics (Dom. Sci. 12)	5
Debating (P Spk 12)	5

In the specific requirements for graduation, Grand Rapids has adopted the standard that quite generally is to be found in Michigan and the Central Northwest, namely: English, 3 years; mathematics, 2 years; history, 1 year; science, 1 year; and vocational subjects (manual training, domestic science and art, commercial branches and like subject), 1 year. The prescriptions, except for the omission of foreign language study, meet the specific entrance requirements of the University of Michigan and at the same time insure to the pupils both variety of subjects and some degree of continuity of effort within them.

Several questions may be raised in reference to the work here outlined. Among these are the following: In an intensely practical age like ours should two years of mathematics in the form in which the course in mathematics is organized for the high schools today be an absolute requirement for every pupil who seeks the honor of graduation? In a public-school system which aims primarily to develop loyal citizens of the realm ought not the prescription in history to be specifically American History and Civics? In a generation in which science is so fundamental a subject in life relations as it is today should not two years' work in that field of knowledge be expected of each pupil—one year in the biological and one year in the physical department? Are, indeed, three years' work in English the best dis-

tribution of time for all youths irrespective of their interests and life ambitions?

These queries are fair but cannot be answered dogmatically nor categorically. Educational values depend for their realization upon many and diverse factors. The true manner of curriculum making is to consider the especial needs and the particular difficulties of the youths for whom the work is being planned. The questions that are raised are ones, therefore, that can best be referred to the several principals and their teaching staffs for detailed analyses and for recommendations to the superintendent and the Board of Education. They are, therefore, so referred, with the present recommendation that they be not allowed to lie on the table indefinitely but be considered forthwith on their respective merits.

A second observation* noted in reference to the work of the senior high schools is that no provision is made either for the definite segregation of boys and girls in any of the academic departments or for the differentiation of class work among different sections of the same subject, except that a long and a short course are arranged in European History. The work in the first two years of Latin and German, for example, is precisely alike for those who plan to pursue a four-year course or more in each; is precisely the same for pupils who seek to acquire such a general acquaintance with the forms and vocabularies as will aid them later, in a practical way, in the study of legal, medical, pharmaceutical, chemical, and other technical branches involving foreign language elements and for those whose interests are primarily literary or cultural. In like manner physics and chemistry are organized in precisely the same form and presented in precisely the same manner for boys and girls, except for incidental modifications for individual pupils within the class, for those planning to continue their education in college and technical schools and for those who are not, and for those whose interests are primarily domestic or industrial and those whose interests are aesthetic and general. Like conditions are to be found in the organization and administration of other branches of study, though perhaps offering less basis for criticisms. In schools enrolling as many pupils as the schools of Grand Rapids more than one class section in each of the several subjects may ordinarily be expected for each year. There is, therefore, intrinsically no apparently insuperable reason why a differentiation of the work in the several sections might not be provided and why the specific needs of the varying types of students who elect the courses or can be prevailed upon to elect them may not thus be more fully met. The fact that such flexibility of administration and such adaptation to

individual needs are not more completely planned must account in no small degree for the enormous decrease in the number of pupils electing third and fourth-year foreign language study as compared with the elections of the first and second years. The same body of facts must also quite largely explain the poor showing made by some of the sciences in attracting numbers of pupils to them. The following figures, taken from the class rolls of the second semester, February to June, 1916, indicate what is meant.

A perusal of this table arouses some interesting queries. Why, for example, are only 15 pupils in the Central High School electing fourth-year Latin? What explanation is there for the fact that in the entire system only 67 pupils are pursuing third-year Latin, and only 82 that are pursuing the subject longer than two years? Why are only 28 pupils electing fourth-year German, particularly when third-year German classes are large? What explanation is there for the fact that more than half of all pupils studying mathematics and history are enrolled in the first-year classes in both subjects? Why do only 10 girls elect zoology and only 50 boys elect botany? Why is it that four times as many boys elect chemistry as do girls, and only 180 pupils, all told, are pursuing the subject? Why is only one girl at the Union School studying physics and only 47 girls in the entire school system?

It seems very obvious from the above comparative statistics and unanswered queries that the entire curriculum of the secondary schools demands careful analysis and possibly radical reorganization. It seems especially obvious that if foreign language study in the high schools is to continue to make an effective appeal to pupils in a practical age such as ours, that the work must, in the earlier years particularly, be made much more specifically varied and vital than it has been. Indeed in cosmopolitan high schools such as Grand Rapids maintains there is every reason why some of the courses at least, and particularly of the first and second years, should be given a distinctly practical or functioning trend. The courses of the third and fourth years may be continued, if thought desirable, chiefly as literary studies pure and simple. It is therefore recommended that teachers of foreign languages give respectful attention to the modern demands which a practical age is making of them in respect to the organization and presentation of the subjects which they teach, and so far as it is possible for a body of teachers in a single school system to be independent of those forces of tradition which they clearly see to be ill-suited to contemporary school procedure, that they recog-

TABLE XXXIII
Enrollment in certain classes in the Grand Rapids High Schools during the Second Semester of 1916.

	Central H. S.		Union H. S.		South H. S.		Junior H. S.		Totals	
	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
1-year Latin*	55	44	22	26	20	18	33	26	130	114
2-year Latin	83	117	7	18	18	27	....	....	108	162
3-year Latin	8	38	....	....	14	7	....	....	22	45
4-year Latin	6	9	....	....	....	....	....	....	6	9
Totals	152	208	29	44	52	52	33	26	266	330
1-year German	31	20	36	31	11	20	25	37	103	108
2-year German	48	55	25	25	17	31	....	....	90	111
3-year German	117	143	2	4	9	12	....	....	128	159
4-year German	4	20	1	3	....	....	....	....	5	23
Totals	200	238	64	63	37	63	25	37	326	401
1-year Algebra	98	91	123	94	94	78	86	79	401	342
1-year Geometry	74	54	26	17	51	27	....	....	151	98
3-year Mathematics	164	112	35	14	....	....	....	....	199	126
Totals	336	257	184	125	145	105	86	79	751	566
1-year History	71	81	41	50	45	65	45	56	202	252
2-year History	49	25	19	21	17	11	....	....	85	57
3-year History	68	72	10	13	....	....	....	....	78	85
4-year History	55	58	17	8	....	....	....	....	72	66
Totals	243	236	87	92	62	76	45	56	437	460
General Science	47	48	49	21	10	15	26	7	85	43
Physiology	....	....	27	27	....	....	....	....	74	75
Physical Geography	....	....	....	....	43	10	....	....	43	10
Botany	33	56	13	18	4	11	....	....	50	85
Zoology	....	....	11	7	20	3	....	....	31	10
Chemistry	107	31	37	5	....	....	....	....	144	36
Physics	68	46	23	1	....	....	....	....	91	47
Totals	255	181	160	79	77	39	26	7	518	306
Total enrollment in High School	287	265	414	466	150	189	339			
	1291	880	552							

nize and re-adapt foreign language study to the spirit of those demands.

A recommendation of like sort is also made to teachers of all the other traditional subjects. Particularly is there need, both on general educational principles and on the basis of the facts exhibited in the table presented herewith (Table XXXIII), for a modification of the work in some of the science courses. Household chemistry and a course in physics that shall deal primarily with the common phenomena of daily life and include only a minimum of the quantitative studies of technical and quasi-technical topics relating to specialized interests surely are the educational rights of the girl and the boy who are seeking a secondary-school training which leads directly to the home and to business, just as fully as the more intensified courses are the democratic high-school birthright of the youths who are planning a college career. The dogma: "Whatever best fits for college also and necessarily best fits for life" is no longer accepted as good pedagogy or good common sense.

The one branch of study that appears to be unduly limited in the scope of its offerings in the Grand Rapids high schools is music. This fact is peculiarly strange since the city is the center of unusual musical activity and interest. Choruses, orchestras, glee clubs, and bands do exist in thriving fashion in each of the several schools, and instruction once or twice a week is given in the art of musical expression. But, except at the Central High School, and even here largely in the Junior College, no provision is made for studies like harmony, history of music and musical appreciation. Nor, except in rare instances, is school credit allowed for musical studies carried forward outside the school system. It is therefore recommended that the authorities consider the advisability both of extending the range of offerings in music in the several schools and also of accepting more freely, but under guarded conditions, a limited number of credit points for musical studies pursued privately by pupils.

In general Grand Rapids has made ample provision for courses in manual training. A possible exception is found at the Central High School. Here no opportunity is offered young men to acquire training in any form of metal work or forging, nor is a machine shop operated. There seems to be some demand for work of this kind, and the manual training rooms, as at present arranged, permit the easy installation of it. The authorities are, therefore, advised to consider the wisdom of the project and to provide for its inauguration if conditions warrant doing so.

In providing for the organization of recitation sections, Grand Rapids has in general kept the size of classes at an advantageous

figure. Of course no absolutely fixed number of pupils per class can be designated as the invariable minimum and maximum standards. The North Central Association of Colleges and Secondary Schools has gone on record as follows: "No recitation class should enroll more than thirty pupils." On the other hand local and temporary conditions often make the organization of classes with an unusually small number of pupils entirely justifi-

TABLE XXXIV

Facts concerning the enrollment of students according to subject in three of the Grand Rapids High Schools.

CENTRAL HIGH SCHOOL

SUBJECT	Number of Sections	Number of Pupils	Number of Teachers	Average Size of Class
English	50	1083	11	21+
Mathematics	37	849	9	23—
History	22	493	5	22+
German	19	373	4	19+
French	5	86	1	17+
Spanish	3	53	1	17+
Latin	22	481	5	22—
Science	26	525	8	20+
Commercial Work	26	557*	6	21+

Additional facts:

(a) Only one class in the school enrolls more than 30 pupils, except certain classes in commercial work, art, and manual training.

(b) No class enrolls fewer than 12 pupils, while the following number enroll between 12 and 20 each: Latin, 3; Science, 8; Commercial Work, 5; English, 14; Mathematics 1; History, 6; German, 6. Total, 43.

* The compilation omits one class in spelling, penmanship, etc., of 312 pupils.

UNION HIGH SCHOOL

SUBJECT	Number of Sections	Number of Pupils	Number of Teachers	Average Size of Class
English	21	496	6	23+
Mathematics	19	420	4	22+
History	10	217	2	22—
German	10	128	2	13—
Latin	4	69	2	17+
Science	13	271	3	21—
Commercial Work	14	293	3	21—

Additional facts:

(a) Aside from the semi-vocational classes three sections only enroll more than 30 pupils.

(b) Eleven sections enroll but 12 or fewer students each. These are: German, 6; Latin, 1; French, 1; Science, 1; History, 2.

SOUTH HIGH SCHOOL

SUBJECT	Number of Sections	Number of Pupils	Number of Teachers	Average Size of Class
English	22	518	5	23+
Mathematics	22	630	5	29—
History	17	448	4—	26+
German	5	110	1	22
Latin	6	108	1+	18
Science	4	92	1	23
Commercial Work	11	299	3	27+

Additional facts:

(a) The following sections with enrollments above 30 pupils each are being conducted: English, 2; Mathematics, 10; History, 5; German, 1; Commercial Work, 6.

(b) Only three sections have fewer than twelve pupils enrolled. These are: German, 1; Latin, 2.

able from the standpoint of both pedagogical theory and economic expenditures.

A perusal of the daily schedules for the second semester, 1915-16, of the several high schools in Grand Rapids reveals some interesting facts relating to this topic.

It is clear from the above statistics that attention to certain administrative changes should be given forthwith. With ten sections in German at the Union School enrolling in the aggregate 128 pupils and with six of these sections enrolling fewer than thirteen pupils each (one enrolling 4, one 6, one 10, and two 12), with one section in French enrolling only 4 persons and one section in Latin enrolling 7, there is convincing evidence that the supply of language offerings of the kind that is given is in excess of the demand. On the other hand, with 24 sections at the South High School each enrolling more than 30 pupils per section (and eight of them enrolling more than 35 pupils each) it is equally clear that the number of class divisions and consequently the number of teachers employed is inadequate. The phenomenal growth of the school during the past year may in part excuse a situation which ought not to be continued permanently.

That the training given to pupils in the several high schools of Grand Rapids is, generally speaking, appropriately broad in scope and acceptably effective in quality is evident in several ways. The term marks that are given out by teachers do not necessarily carry with them to others the positive conviction of infallibility. However they do have their value. The accompanying table shows the distribution of grades as they were issued by the Union High School in February, 1916. The percentage of failures, except in a few subjects, is not unduly large or small.

TABLE XXXV

Percentage of pupils in 17 classes at the Union High School with records of E, G, F, 75, failures, conditions, and incompletes for the semester ending January 26, 1916.

SUBJECT	E %	G %	F %	75 %	Failed %	Condi- tioned %	Incom- plete %
Algebra-1	21.27	28.36	34.75	3.56	9.22	2.83	00.00
Algebra-2	28.12	31.25	15.63	12.50	12.50	00.00	00.00
English-1	00.00	37.97	43.41	6.20	6.20	4.66	1.55
English-2	00.00	28.86	36.53	13.46	5.77	9.62	5.77
English-3	11.86	44.06	35.58	8.48	00.00	00.00	00.00
English-4	14.90	42.55	36.16	2.13	2.13	2.13	00.00
History-1	8.33	48.33	21.67	5.00	11.66	3.33	1.66
History-2	10.71	46.44	25.00	10.71	00.00	3.57	3.57
General Science-1	13.72	22.72	31.81	4.54	13.72	9.09	4.54
Bookkeeping-1	6.66	36.67	23.33	1.66	15.00	00.00	16.67
Bookkeeping-2	8.57	31.42	37.14	00.00	2.86	00.00	20.00
Latin-1	8.33	37.50	33.33	4.17	12.50	4.17	00.00
Latin-2	00.00	25.00	23.00	00.00	50.00	00.00	00.00
German-1	11.76	31.37	37.26	5.88	13.73	00.00	00.00
German-2	9.09	21.21	42.42	12.12	15.16	00.00	00.00
Geometry-3	33.33	16.67	16.67	8.33	00.00	00.00	25.00
Physiology-1	8.89	28.89	37.78	8.89	11.11	00.00	4.44

Table XXXVI shows the efficiency of the industrial training of the Union School as evidenced in the cases of nine boys (only one being a graduate) who during the summer of 1915 were given positions with responsible firms in the city.

TABLE XXXVI

Wages earned by boys during the summer of 1915, from their experience in Union School machine shop.

F. Hesseltine	Given $\frac{1}{2}$ year on apprenticeship	Baldwin & Tuthill
H. DuBois	\$15.00 per week	Fox Machine Company.
A. Vis	\$10.00 per week	In his father's machine shop.
J. Coper	\$10.00 per week	Wilmarth & Morman
P. DeBoer	Given 1 year on apprenticeship	Fox Machine Company.
P. Smith	\$15.00 per week	Wilmarth & Morman.
J. VanderMale	\$13.00 per week	United Motor Truck Co.
M. Bildson	\$15.00 per week	Republic Truck Company.
J. Rindal	\$9.00 per week	Waddell Manufacturing Co.

A third test of the efficiency and adaptability of a school system is found in the percentage of pupils that are retained in the schools throughout the entire course as planned. The following table seeks to indicate the situation in Grand Rapids.

TABLE XXXVII

Showing the number of teachers in whose classes the elimination of pupils between September 1915 and February 1916 lay between certain given percentages.

SCHOOL	Number of Teachers		Number of Teachers Eliminating				
	Not Reporting	0%	1—5%	6—10%	11—15%	Over 15%	
Central	1	0	7	17	19	4	
Union	6	0	19	9	4	1	
South	4	0	15	11	2	3	
Junior	11	0	7	5	6	4	
Totals	22	0	48	42	31	12	
Percentages	14.2		30.9	27.1	20.0	7.8	
Median loss between 6% and 10%.							

Table XXXVII is to be interpreted thus: Seven teachers at the Central High School last semester (Sept. 1915-Jan. 1916) permanently eliminated from their classes between one and five per cent of their pupils; seventeen eliminated between six and ten per cent; nineteen eliminated between eleven and fifteen per cent; and four eliminated more than fifteen per cent. The median loss is between six and ten per cent, not an unusually large ratio when all eliminating factors are taken into account.

Table XXXVIII shows that as compared with fourteen other typical cities of the United States the percentage of pupils in Grand Rapids who are retained in the school system until the twelfth or graduating grade is reached is that of the median group.

TABLE XXXVIII

Showing percentage of the total high-school enrollment in the graduating class for Grand Rapids and fourteen typical cities.

CITY	High School Enrollment	Percentage of Pupils in Graduating Class
Paterson, N. J.	2400	6.5
Richmond, Va.	2360	7.4
Syracuse, N. Y.	2838	7.5
Nashville, Tenn.	1500	9.5
Fall River, Mass.	1536	12.0
Worcester, Mass.	3945	12.0
Trenton, N. J.	1384	13.0
Omaha, Neb.	3000	13.0
Grand Rapids, Mich.	2254	13.2
Reading, Pa.	1575	15.0
New Bedford, Conn.	1200	15.5
Columbus, Ohio	4228	15.8
New Haven, Conn.	3300	16.3
Des Moines, Iowa	3115	16.3
Spokane, Wash.	3500	18.0
Median: Approximately 13.5%.		

A still further test of the efficiency of the work of the Grand Rapids high schools is seen in the records maintained by the graduates of these schools during their first semester's residence in colleges and universities. During the past four years Central High School has graduated 772 students and Union High School 267. During these same four years, 387 of the graduates of the Central High School and 80 of the graduates of the Union High School entered higher institutions of learning. That is, 50% of Central graduates, and 30% of Union graduates have entered colleges, being 44.94% of all graduates of the two schools. This per cent compares very favorably with those of other school systems as is shown by the accompanying table.

TABLE XXXIX

Showing the percentage of graduates who have entered college during the last four years from the high schools of Grand Rapids and nine other cities.

CITY	Percentage of Graduates
New Haven, Conn.	10%
Nashville, Tenn.	20%
Fall River, Mass.	25%
Worcester, Mass.	35%
New Bedford, Conn.	38%
Grand Rapids, Mich.	44.94%
Des Moines, Iowa	45%
Scranton, Pa.	50%
Columbus, Ohio	60%
Spokane, Wash.	75%

One hundred and twenty students who have graduated from the Grand Rapids high schools (108 from Central and 12 from Union) have entered the University of Michigan during the past six years. The records they have made during the first semester of their freshman year is given in the subjoined table.

TABLE XL

Showing the academic record sustained by the graduates of two Grand Rapids high schools during the first semester of their attendance at the University of Michigan.

CENTRAL HIGH SCHOOL GRADUATES

Year	No. Entered	No. with no Grade Below C	No. with One Grade or More Below C	No. Warned	No. Dis-missed	No. Withdraw
1910	16	10	4	0	0	2
1911	24	22	2	0	0	0
1912	14	12	2	0	0	0
1913	20	13	4	2	0	1
1914	16	12	3	1	0	0
1915	18	7	4	7	0	0
Totals	108	76	19	10	0	3
Percentages		70.4	17.5	9.2		2.8

UNION HIGH SCHOOL GRADUATES

Year	No. Entered	No. with no Grade Below C	No. with One Grade or More Below C	No. Warned	No. Dis-missed	No. Withdraw
1912	1	1	0	0	0	0
1913	0	0	0	0	0	0
1914	4	0	1	2	0	1
1915	7	4	2	1	0	0
Totals	12	5	3	3	0	1
Percentages		41.6	25.0	25.0		8.3
Grand Totals	120	81	22	13	0	4
Grand Percentages		67.5	18.3	10.8		3.3

The table reveals the fact that until the fall of 1915 the records sustained at the University were unusually good. Of the 25 freshman who entered in 1915, however, eight were placed on the "warned" list at the end of the first semester. Whether these figures indicate that scholarship standards are declining in Grand Rapids or are being raised at the University, or that principals in recommending pupils to college authorities are not discriminating as carefully as formerly, or that an unfortunate combination of circumstances last year produced the results mentioned, there is of course no positive means of determining. The facts indicate clearly that a possible weakness of some sort exists, and it is therefore incumbent upon principals and their teaching staffs to scrutinize with care succeeding evidences of declining standards of scholarship and take measures to remove their causes.

Provision for meeting the social needs and interests of the pupils of the high schools seems to be varied in kind and ample in extent. "Democracy's high school" is an expression that fittingly characterizes each building, for democracy rightly demands for her subjects a well-rounded, many-sided education and not solely an intellectual training. Such an education is being given in Grand Rapids. Pupils are being taught lessons of

individual initiative and independent leadership, of active and interested group co-operation and participation, and of ready and cheerful submission to the collective will when socially expressed. This training is being secured through various types of student collateral activities—debating or forensic clubs, student councils, literary societies, study clubs, dramatic associations, musical societies, business organizations, journal clubs, and similar agencies. Moreover, a spirit of happy, genial, enthusiastic activity prevades each school. Kindly sympathy and courteous, frank intercourse between pupils and teachers, and pupils and schoolmates, were conditions that were everywhere observable. The one insidious danger that may perchance lie hidden in the whole social organization of the high school is excess. So long as the collateral activities are supervised and controlled as they seem to be at present naught, in general, but advantage will emanate from them. The gymnasium erected for the recreational activities of the pupils of the Central High School ought, in the interest of the social life of the pupils attending, no longer to be diverted from its original purpose. Only by the use of properly arranged quarters can the social, athletic and recreational life of the pupils be duly administered and safe-guarded.

One further observation respecting the organization of the Central High School is to be noted. This school is planned to accommodate only senior high-school and junior-college students. At the present time fifty-five ninth-grade pupils are also enrolled in the building. Pupils of this grade should be transferred as soon as feasible to other buildings where the work may be organized in close conformity to their needs. In harmony with such action it seems reasonable to suggest that the Board of Education modify its policy of basing the salaries of session-room teachers on the number of pupils enrolled. The reasons for such a recommendation are clearly obvious.

The Junior College

The educational theory upon which two years advanced work beyond graduation from the high school is to be provided by the public school system for the young people aspiring to a full college training, is a sound educational theory. The provision for this work within a central high-school building is also a wise provision. There can be no doubt that with facilities for securing the first two years of college or university training within the school system of one's own city or town a full college career will be made possible to many a youth who otherwise, for economic reasons, would either be deprived of the privilege entirely or else

would have the realization of it so long deferred as to make its attainment doubtful, if not altogether improbable. The recorded facts relating to the Junior College in Grand Rapids bear out this contention in the cases of several individuals.

Moreover, moral considerations, especially in so far as they concern youths of undeveloped social habits and those of unsophisticated experiences, argue to the same end. For such, a year or two years beyond high-school graduation spent in their own town and school where they are surrounded by familiar influences and associated with teachers and companions who know their points of strength and weakness and who can sympathize with them in a personal way—for such the junior college serves a valuable end. Large colleges and universities situated at some distance from home are often not the fittest places for youths who are unusually immature, although graduates of secondary schools. Persons of this class need a little longer the personal protecting care of the parental surroundings. Besides, the ties of family life make the postponement of the severance thereof as long as possible exceedingly desirable to many a parent and to many a child. When the boy or girl has once broken from the family circle, to live even temporarily apart from its direct influence, a return thereto in any permanent way is as nearly impossible as it is improbable, and perhaps even undesirable.

Again, it is good business sense which dictates a plan for educating as many as possible of the young men and women in their home city. Each young man or woman who secures his collegiate training away from Grand Rapids, thereby, for the most part, deflects from the city's business resources a sum of money equal to the cost of his collegiate training. The junior college established locally tends to keep such expenditures in the channels of local trade.

But there are also other good practical reasons why the junior college should be perpetuated in Grand Rapids. The new Central High School building is erected in the older section of the city. Its immediate constituency is composed, to a large degree, of the older families, families that are reaching the point of retirement from active participation in business affairs. When the children who are at present in the schools have graduated, relatively few others from the same families will be entering the schools to take their places. Moreover, each year sees not only a notable expansion in the entire population of Grand Rapids, but the encroachment on the old residential district of business houses, apartment houses or institutions of a public or quasi-public character. In consequence, if the present building is to serve the city to its fullest capacity, it must continue to exist as

a school for the entire city and not ever be limited to a school for a small section of the city. A junior college fully developed would serve just such an end. The trend of public education throughout the entire United States is certainly in the direction of including in the public school system the two years' work that is for the most part, at the present time, included among the offerings of institutions of higher learning. That is, the first and second year's work in our universities will certainly, in some cases at least, gradually be taken from those institutions and be incorporated into the local school systems, thereby making the opportunities for the acquirement of the work of these two years much more readily obtainable by all classes of students, and, at the same time, relieving the unweildy congestion that is now being experienced in most of the larger universities. There can be no question that the junior-college movement is upon us. It is being developed in all portions of the land from California to Massachusetts. Grand Rapids, therefore, in making provision for such an extension of its public-school work is in entire harmony with the prevailing theory and practice of the best educational movement of the day.

The present Junior College, however, which was opened in Grand Rapids with much eclat in 1914 and seemed for one year to be developing a momentum and an influence that would cause it to be firmly established as an integral part of the Grand Rapids school system, is not meeting either the ideals or the conditions that can rightly be demanded of it. Instead of gaining in strength and prestige, it is dwindling and waning in power and influence. Instead of increasing in numbers of students, it is actually diminishing in numbers. This year it is very obviously passing through a critical period. Twelve months ago it enrolled 42 students. This year it has attained a maximum of only 37 members and these have been depleted in numbers for one reason or another, until at present (April, 1916), only 22 are in actual attendance. The size of classes is in consequence necessarily small—too small, indeed, in several cases, to make the continuance economically justifiable to the taxpayers. It is undoubtedly true that small sections must for sometime be the rule rather than the exception in any newly established junior college which the city might provide. Moreover, there is both psychological and practical justification for having classes in college work considerably smaller than those in secondary work. There is, however, a minimum below which the public-school system may not continue to organize courses. The following figures give the present enrollment in the several classes:

English: now enrolled, 17; last semester, 22. History: now

enrolled, 9; last semester, 13. German: now enrolled, 8; last semester, 9. Mathematics: now enrolled, 7; last semester, 12. Biology: now enrolled, 8; last semester, 8. Physics: now enrolled, 6; last semester, 8. Moreover, when we consider that, as the work is organized in Grand Rapids, the regular teachers of the high school are given charge of the work in the Junior College and therefore excused from two class periods in the high school for each class period which is carried on in the Junior College, it again is perfectly apparent that economic reasons will demand that class sections shall not be unduly small.

The Junior College in Grand Rapids is in very grave danger of dying a premature death. As already indicated above, it is an institution that is altogether too worthy of a place in our present-day school system to be allowed to die out. In its establishment two years ago, the Board of Education of Grand Rapids put itself in the forefront of educational progressiveness in the state of Michigan, not to say in a goodly portion of the United States. To allow the undertaking as it has been inaugurated, to pass into oblivion, would be a calamity for Grand Rapids, for the state of Michigan and for the cause of progressive education in general.

Wherein, then, lie the elements of weakness and of menacing dangers, and what agencies and means of correction are possible? First, it should be said, the trouble surely does not center in the teaching staff which has been chosen to conduct the work of instruction. These persons have been selected with discrimination. They are eminently fitted for the several positions which they occupy. Indeed, it is doubtless fair to allege that because of their maturity of years, their somewhat extended periods of teaching experience, their personal interest in the young people under their tuition, and their keen sense of responsibility for the successful operation of the new plan, the teachers who are charged with the conduct of the junior college work in Grand Rapids are actually giving to the young people under their charge a collegiate training that is superior to what could ordinarily be expected from the younger and ultra-academic instructors into whose classes freshmen students are commonly placed on their entrance into our larger colleges and universities.

That the intellectual training given in the Grand Rapids Junior College is fully up to the standards set by the older colleges with their four-year courses is fully evidenced by the following statistics gathered with reference to such students as had completed one year's work in the Grand Rapids Junior College in 1914-15, and have during the current year, 1915-16, continued their collegiate careers in other institutions of higher learning.

Sixteen students are included in this group, the different colleges attended by them being seven. The distribution of these students is as follows: Oberlin, one; Notre Dame, one; Northwestern, one; Wisconsin, two; University of Michigan, (engineering) two; University of Michigan, (literary), eight.

By comparing the grades or marks accorded to these sixteen students by the teachers in the Junior College in June, 1915, with the grades or marks obtained by them at the close of their first semester's work in the several older colleges attended by them in February, 1916, the following table is derived:

TABLE XLI

Comparison by subjects of the grades given sixteen students at the Grand Rapids Junior College and at various senior-college institutions.

	Junior College Grades						Grades Given by Other Colleges					
	A's	B's	C's	D's	E's	Total	A's	B's	C's	D's	E's	Total
Rhetoric	2	5	9	0	0	16	1	4	3	0	0	8
Mathematics	1	2	2	4	1	10	0	1	2	0	0	3
History	4	1	3	0	1	9	2	6	0	0	0	8
Biology	0	6	3	0	0	9	0	1	0	0	0	1
Physics	2	2	0	1	0	5	0	1	0	0	0	1
German	2	2	5	0	1	10	5	4	1	0	0	10
Total	11	18	22	5	3	59	8	17	6	0	0	31

The above table shows that no grade below C was given to any junior-college pupils of Grand Rapids in any senior college last semester (so far as pupils continued junior-college work in the senior college), that only six pupils received a grade of C, while 17 received a grade of B, and 8 a grade of A.

By comparing the changes in position of pupils in the two types of institutions—junior college and senior college—another check on the work of the junior college is secured and interesting facts are revealed. Table XLII gives these items. Here it is seen that only four persons in senior colleges fell below the grades given in the junior college, fourteen received precisely the same grades, while eleven gained grades above those given in the junior college. This is a remarkably good record.

TABLE XLII

Relative standing of students who continued in other colleges the same subjects they pursued in the Grand Rapids Junior College.

SUBJECTS	Falling Below Junior College Grade in Same Subject	Having Same Grade as in Junior College	Having a Higher Grade Than in Junior College
Rhetoric	2	5	1
Mathematics	0	0	2
History	1	4	2
Biology	0	1	0
Physics	1	0	0
German	0	4	6
Total	4	14	11

If the grades obtained by students in subjects not pursued in the junior college but first elected in senior colleges be considered, substantiating evidence of the high quality of work done in the junior college is obtained. Table XLIII shows the figures. Here it is noted that of the twenty-six grades given out, seven are A's, five are B's, fourteen are C's, and not one is below C. That is, approximately 50% of the grades are what colleges usually regard as *excellent* and *superior* and none is below *good*.

TABLE XLIII

Grades obtained by Grand Rapids Junior College students in subjects not begun in the Junior College.

SUBJECT	A's	B's	C's	D's	E's	Total
Chemistry	0	0	3	0	0	3
French	4	1	2	0	0	7
Spanish	0	0	2	0	0	2
Latin	1	0	0	0	0	1
Philosophy	0	2	6	0	0	8
Economics	2	0	1	0	0	3
Astronomy	0	2	0	0	0	2
Totals	7	5	14	0	0	26

By combining all the grades secured—both in the junior college and in the various senior colleges—an even better show-

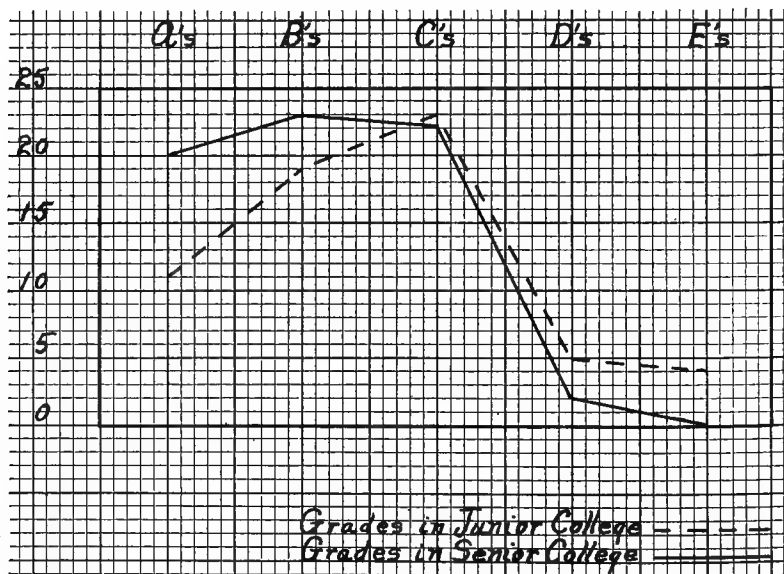


DIAGRAM LXIII—Distribution of grades of Grand Rapids Junior College students in Junior College and in Senior College.

ing is made for the Grand Rapids students. Table XLIV and Diagram LXIII make this clear. Of the total number of grades (67) secured in Senior Colleges, forty-three, or more than 64.17% are superior grades, and only two, or less than 3% are below C, or what is regarded as a normally satisfactory grade.

TABLE XLIV

Distribution of grades among the sixteen Grand Rapids Junior College students entering Senior Colleges in 1915.

	A's	B's	C's	D's	E's	Total
Grades given in Grand Rapids Junior College	11	19	23	5	4	62
Grades given in Senior Colleges.....	20	23	22	2	0	67

There is only one conclusion that can be drawn from the above facts and figures, namely, that the Grand Rapids Junior College during its first year of existence did train students, intellectually and academically speaking at least, to a high degree of proficiency. There is no reason to question but that it is doing similar work at present.

On the other hand, an analysis of the concrete situation and an observation of the junior college actually at work reveals counter-active forces in operation. There is little opportunity for, or little realization of, college spirit—that indefinable something that leaves its abiding influence on persons even when the effects of classroom activities have seemingly passed away forever. The enrollment in the junior college is too limited, recitation sections are too small, collegiate interests and activities are too curtailed to produce the most friendly emulation and the most wholesome stimulation for young people. Members are too few to develop an esprit de corps of their own. Surroundings are too impersonal to lend themselves to a feeling of proprietorship, even of partnership. There is little or nothing that the junior college students can look upon as their own—as constituting a constructive element in their group taken as a group. Not only are they housed in the same building with the high-school pupils, but their recitation work is carried on in the same classrooms and with the same equipment as that provided the high-school pupils. They are denied not only a segregated section of the building, but also any room that they may regard as their own session or rest-room. No consultation rooms are available for them; no separated portion of the library is devoted to them for study or for reference work; no assembly meetings are possible for them. Nor are there facilities for gymnastics, athletics, literary and social activities to inspire them with a sense of homogeneity of thought and action. In short, the junior-college students are at present, at least to a large degree, an unarticula-

tive group of young people, without consistency of organization, without definiteness of purpose, without group consciousness, and without the material surroundings and equipment that will tend to produce these essential elements readily. Values are not always determinable in quantitative terms, and it is altogether probable that the American colleges have recently committed the impious sin of the worship of numbers of students they can enroll. Nevertheless, there can be no true college spirit, and hence no true college, without a student body of fairly respectable size. What the minimum is none can say with positiveness. It seems reasonable to state, however, that a junior college attached to the public school system in Grand Rapids cannot be economically conducted with fewer than one hundred persons enrolled. For a year or two at the outset of the undertaking, a smaller number may be sufficient to justify the experiment, but surely an ideal of two or four hundred students enrolled must be expected for the not too remote future.

It should, therefore, be the first business of the school authorities to secure an attendance in the junior college to warrant not only the continuance of the college, but its gradual expansion. This is an age of advertising—of letting prospective interested people know what is provided for their needs and of presenting the matter to them in an attractive, appealing way. A campaign of dignified, judicious advertising of the Junior college, not only among the citizens of Grand Rapids, but also among the residents of suburban towns lying within the western section of Michigan, may well prove a wise venture.

Secondly, in order to make the college truly attractive, the Board of Education may very fittingly consider, at least the wisdom of providing for it either a definitely segregated portion of the Central building or of some other building, and of encouraging in all appropriate ways the development of a true college atmosphere and a true college organization.

A third factor enters into the future development, organization, and administration of the Junior College in Grand Rapids. This is the attitude of the senior college towards it, and the articulation that can be secured between the junior college on the one hand and the senior colleges on the other. In the nature of the case, the University of Michigan is the chief standardizing educational agency in the state. And it ought so to be. Not only is it an integral part of our public school system, but it has, from the earliest days to the present, been generally recognized as the head and crown of that system. In consequence it would be extremely unfortunate, not to say dangerous and disastrous, for the Junior College in Grand Rapids to grow up entirely unrelated

and unarticulated with the older and more complete institution, the University of Michigan. And yet, right at this point is the crux of much of the difficulty respecting economical administration of the junior college. The University has approved the experiment Grand Rapids is making, and has agreed to take the students who may be trained in the junior college and allow them credit, hour for hour, for work pursued therein. It has, however, steadfastly insisted that the junior-college work shall not only be taught by teachers of pronounced superior academic training (ultimately to be guaranteed by the collegiate degree of Master of Arts or Doctor of Philosophy), but also that the junior-college classes shall be segregated absolutely from the classes made available in the high school. In other words, the University has insisted that precisely the same entrance requirements shall be enforced in the Junior College as would be exercised at the University itself and that none but high-school graduates, having fifteen units of approved work, shall be admitted to junior college work. In consequence in several cases small classes covering precisely the same field of work, though possibly in a slightly different manner, have been carried simultaneously by the same teacher—one class being scheduled as junior-college work; the other as high-school work. This situation is noticeable particularly in third-year German, in biology, and in history. Moreover, since the Board of Education has prescribed a tuition fee of sixty dollars for junior college work, whereas similar courses may be elected in the high school without any tuition fee whatever, it has resulted in a goodly number of young people remaining in school as graduate high-school students, rather than as junior college students, albeit the University allows but half credit for any distinctively high-school work of that kind.

It not infrequently happens, also, that an individual pupil in the high school completes the required work for graduation at the end of the first semester, but, for personal reasons, defers taking the diploma until the June commencement time. Under the present arrangements, such a person is denied the privileges of the junior college. And, again, it occasionally happens that a senior in the high school has completed thirteen or fourteen of the required fifteen units, and has included in these credits all of the specific prerequisites for admission to certain junior-college courses. For example, attention was called to several cases in which seniors had already to their credit four units in English, or two units in German, or one unit in history, or science, but who, under the rules, were kept from the junior-college classes of the same line of work. To admit them to junior-college work under the circumstances, would, it is true, be the equivalent of

admitting students with academic conditions—a practice at present condemned by most standard institutions of higher learning.

Nevertheless, while the junior-college is in its infancy, it is the part of justice, not to say wisdom, to surround it with all the best possible conditions of growth. Standards of scholarship must be maintained, but the employment of good common sense in the administration of the agencies designed to secure such standards must also be employed. Until the number of students enrolled in the junior college makes possible not alone the organization of fairly good-sized sections for classroom instruction in the various subjects offered, but also the differentiation of sections to meet the multiplicity of needs that inevitably develop under the elective system in schools, considerable freedom seemingly should be accorded the principal and the teachers in administering the work they seek to offer. Ultimately it should not be necessary or possible to place in a class in junior-college German I (third year German) a student who has already completed four years of work in German in the high school; nor to group together in junior-college Mathematics I, those who have had in high school two years, two and a half years, and three years of mathematics respectively; nor to admit to junior-college History I, those who have had in high school one year's work, two years' work, three years' work, and even four years' work in the subject. And yet this is done at present in the Junior College.

Two of the present class in Junior-College German (third-year German) have had four years' work in German in the high school; four of the nine at present enrolled in junior-college Mediaeval and Modern European History had had European History in the high school; three of the eight members of the junior-college Zoology class had carried zoology in the high school; while of the twelve who started junior-college mathematics last semester, five had completed seven semesters of high-school mathematics, three had completed six semesters and four had completed five semesters. Yet all of these persons were pursuing junior-college work in classes that also enrolled others whose high-school preparation in the several fields was very much less than theirs.

The Junior College, however, is offending in this respect not one whit more flagrantly than is the University of Michigan, which sets the standards. Indeed, at the University, the classification of students in their work is in many respects even more loosely done, and is done on a much larger scale.

The above conditions are set forth not for the sake of condemning the junior-college organization, and surely not for the sake of giving unqualified approval to the methods in vogue at

the University. They are presented in order to show that in both institutions the concrete, practical exigencies of circumstances must be taken into account. Particularly in a newly established school like the Grand Rapids Junior College, slight variations from fixed standards should be permitted without questioning, especially when it can be shown that such variations are merely technical in character and conduce in no apparent manner to weakening the efficiency of the organization and instruction. Here, as elsewhere, the letter of the law killeth, while the observance of the spirit tends to keep alive and to develop the whole.

In view of the observations made and the comments offered above, the following recommendations are respectfully presented to the Board of Education for their consideration:

First, that the Junior College in connection with the public school system of the city be continued on a permanent foundation, be liberally supported financially and morally, and be permitted to develop unrestrained by any artificial or technical forms of organization and administration.

Second, that the charge for tuition within the college be reduced to a sum no greater at least than that required at the University of Michigan, and that consideration be given to the plan of eliminating, at a very early date, all tuition fees whatever for residents of Grand Rapids, thereby making the junior-college work as available and free as high-school work is at present.

Third, that an understanding be brought about with the University of Michigan whereby a somewhat greater liberality and flexibility of organization of class work may be secured, to the end that a truer classification of pupils pursuing work in specified fields may be made, a more economical organization of recitation sections may be obtained, a greater freedom for the adjustment of individual pupils' interests and needs may be granted, and an enhanced stimulation and esprit de corps within the collegiate work may be produced.

Fourth, that, as soon as feasible, recitation rooms, library facilities, office and consultation quarters, separate and distinct from those of the high school, be provided.

Fifth, that as soon as sufficient numbers of students can be enrolled, a second year of offerings be added to the program of studies or the curriculum.

Sixth, that a dignified campaign of advertising be carried on throughout the city and state, in order that the public may be acquainted more fully with the aims, scope, and organization of the Junior College.

The Teachers

There are one hundred fifty-five teachers engaged in carrying on the work of public secondary education in Grand Rapids. These are distributed among the four schools as follows: Central, 48; Union, 39; South, 35; Junior, 33. These teachers have under their tuition 2,254 pupils, or an average of 14.54 per teacher. The usual number of weekly recitation periods assigned each person is five, but teachers conducting classes in the junior college are given only four high-school sections. Teachers of the manual and commercial branches and other work requiring little attention outside of class hours are not infrequently assigned six recitation periods. The administrative policies that are operating in the arrangements here noted are in accord with the best educational theory of the day and call for no comments.

In establishing the academic qualifications for teachers Grand Rapids has wisely set the standards at college graduation and a minimum amount of teaching experience for all except teachers of the so-called non-academic subjects. The standard however is not being administered retroactively so as to eliminate from the system teachers of long tenure who entered upon their work under conditions somewhat different from those found today, and it ought not to be so administered. In the future, though, it is to be the policy, as avowed by the school authorities at present in charge of the work, to enforce the higher standards of training in the appointment of all new teachers of academic branches both in the junior high schools and in the senior high schools. As in the past, teachers of non-academic subjects will be required to possess evidences of such special training and fitness as the several lines of work may demand. The new schedule of salaries recently adopted by the Board of Education indicates clearly that the intent is to pay teachers sufficiently well to justify the higher professional requirements that are being set. Particularly worthy of commendation is the rare, though thoroughly equitable, policy recently made effective in Grand Rapids in placing teachers of the academic branches in the seventh and eighth grades on precisely the same footing, respecting training and salary schedules, as the teachers of similar subjects in the upper grades of the high school. The departmentalization of the work of these grades and the organization of them as a part of the secondary school system, make it as essential that teachers who are assigned to them shall be as thoroughly prepared in the subjects they are to teach and as fully conversant with the purposes, problems, and procedures of secondary education as it is for teachers of the upper high-

school grades. Indeed there is well-established theory for demanding that teachers of the seventh and eighth grades shall in every respect be among the strongest teachers of the entire school system. The youths attending these two grades are usually in the most restless, mischievous, active, curious, and alert period of school life. None but teachers of pronounced forcefulness of personality and ripeness of sympathy can deal with them and their interests successfully. As stated elsewhere in this report it is precisely the recognition by educators of the peculiar physical, mental, and social traits of boys and girls of the late preadolescent age that has led to the reorganization of the traditional school system to conform to the demand. But no reorganization of system without a corresponding reshaping of the standards set for the administration of the system will produce the desired results. It is the teacher, after all, who gives character and form to any grade or any school.

In view of the newer pedagogy and the newer psychology it is certainly reasonable to expect and demand that the teachers who are henceforth placed in charge of youths in the exacting transition period marked by the junior high-school grades shall possess the following qualifications at least: unusual charm of personality and address, broad sympathies gained through much contact with the world at large and young people in general, several years of active teaching experience, and academic training equivalent to that denoted by the Bachelor's degree. In short, manly men and womanly women of superior natural and acquired traits of character should alone be given positions in these grades, and their salaries should be commensurate with the qualifications demanded. Grand Rapids is therefore taking the wise course in setting for teachers of these grades academic requirements equal to those set for teachers of the higher grades. It ought very justly to set even higher standards.

Table XLV shows the training, teaching experience and the salary schedule of high-school teachers at present in the school system of Grand Rapids.

Diagrams LXIV, LXV, and LXVI show the same facts in a different form. From the table and diagrams it is seen that more than fifty per cent of the teachers in the junior and senior high schools hold college degrees and that more than forty per cent have received normal-school or other special training. In like manner the statistics reveal the fact that the largest number of teachers are those of considerable school experience, more than fifty per cent having been engaged in the work in excess of ten years. Salaries, too, are reasonably worthy as salaries go, more

than fifty per cent of all the teachers being paid in excess of a thousand dollars per year. Table XLVL and Diagram LXVII show how the ranges of salaries in Grand Rapids compare with those in eleven other cities of the country.

TABLE XLV

Record for 1915-16 of the academic training, teaching experience and salaries of high-school teachers in the high schools of Grand Rapids.

TRAINING

SCHOOLS	Total No. of Teachers	With A. B. Degree	With A. M. Degree	With Normal School or Special Aca- demic Training
Central	48	34	4	15
Union	39	15	1	16
South	35	18	0	16
Junior	33	13	3	16
Totals	155	80	8	63

4 teachers did not report.

EXPERIENCE

SCHOOLS	Under 5 Years	5-10 Years	11-20 Years	Over 20 Years
Central	5	5	20	17
Union	6	11	13	9
South	13	9	13	0
Junior.....	10	14	5	4
Totals	34	39	51	30

1 teacher did not report.

SALARY

SCHOOLS	Under \$750	\$750- \$850	\$851- \$1000	\$1001- \$1200	\$1201- \$1500	Over \$1500
Central	0	1	2	9	19	16
Union	4	9	6	9	7	4
South	3	5	7	12	5	2
Junior	4	11	9	4	2	1
Totals	11	26	24	34	33	23

4 teachers did not report.

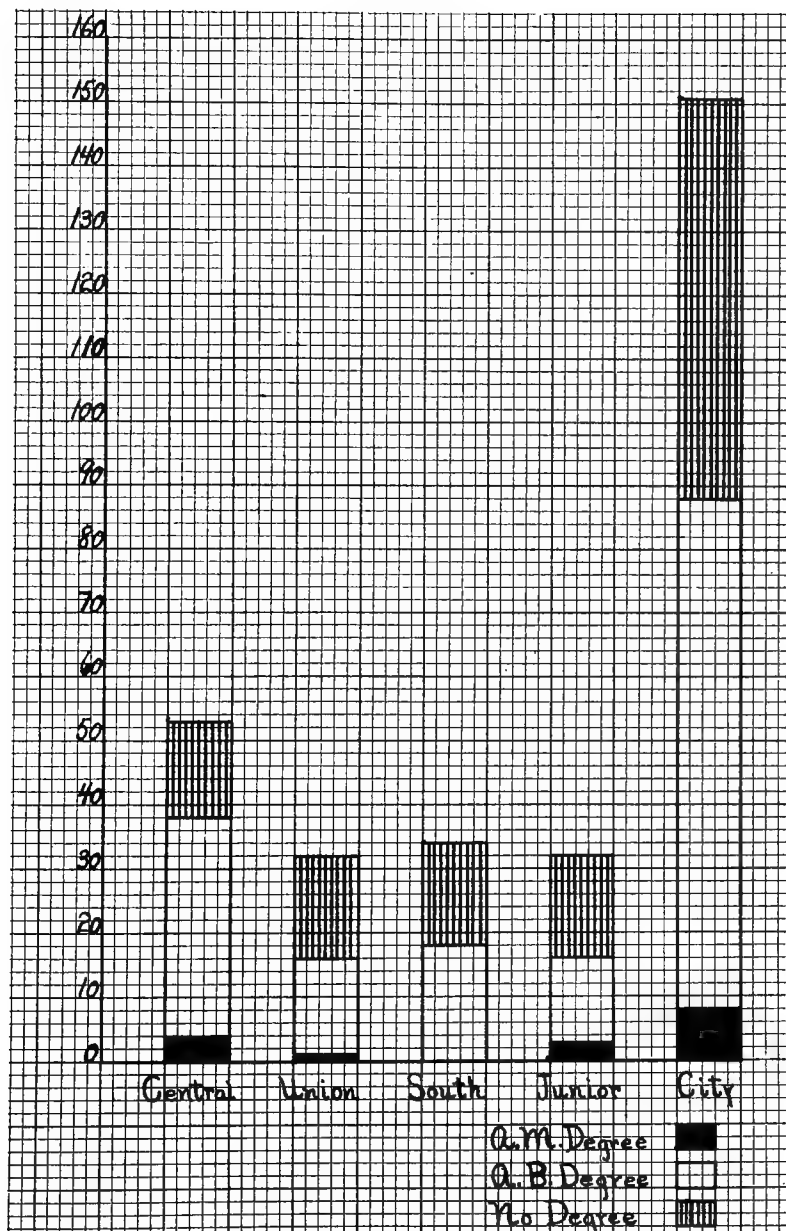


DIAGRAM LXIV—Showing training of high-school teachers in Grand Rapids.

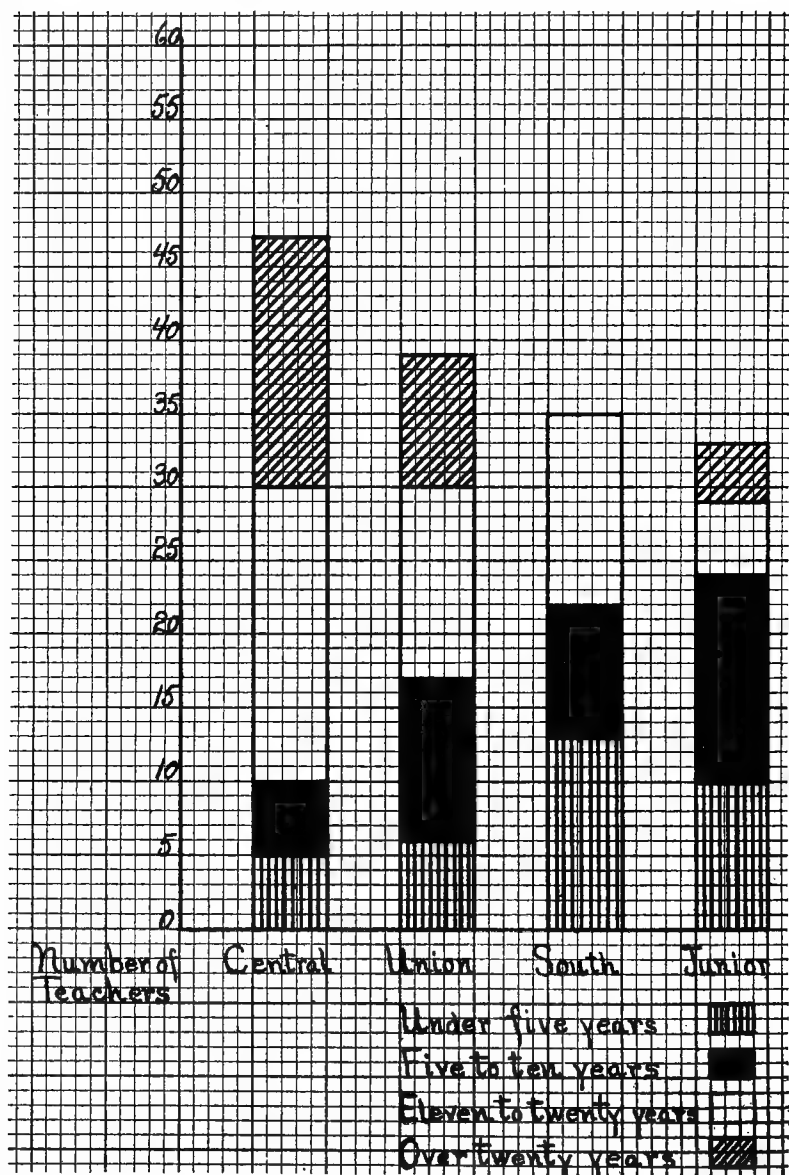


DIAGRAM LXV—Showing teaching experience, in years, of teachers in the several high schools of Grand Rapids.

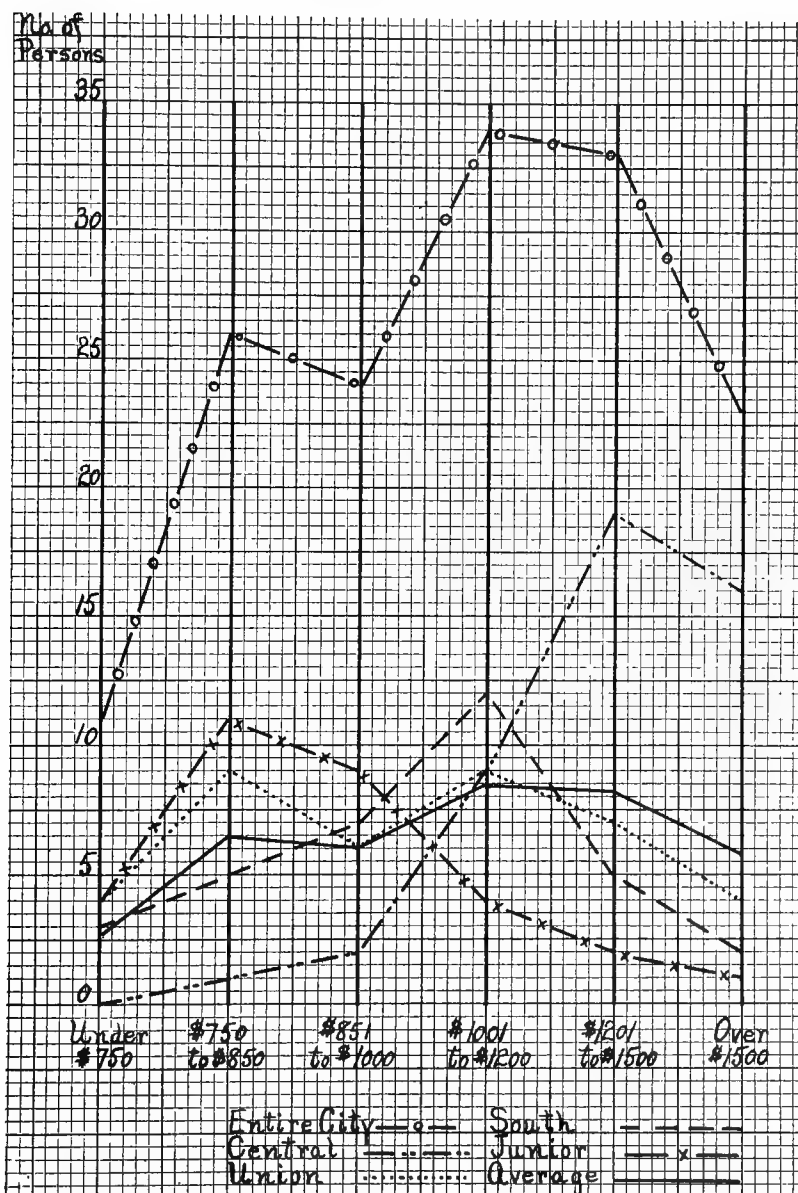


DIAGRAM LXVI—Showing range of salaries in the several high schools of Grand Rapids, the average range and range for the entire city.

TABLE XLVI

Comparison of the ranges of salaries in the elementary and high schools of Grand Rapids with those of 11 other cities.

CITY	Range in Elementary School	Range in High School
Omaha	600-1000	800-1200
Syracuse	400- 800	550-1700
Des Moines .....	.....- 950	850-1400
Paterson	475-1000	700-1800
Grand Rapids	500-1000	800-1350
Nashville	400- 700	900-1500
Spokane	600-1000	1100-1400
Toledo .....	.....	1000-2000
New Haven	450- 850	750-2000
New Bedford	800- 850	800-2200
Trenton .....	.....	1000-2500
Columbus .....	.....	1600-2500

Table XLVI and Diagram LXVII show that Grand Rapids is considerably below most of the cities with which it is compared both in its minimum and maximum limits, particularly for high-school teachers. Only three cities have a lower minimum salary schedule for high-school teachers, while all but one of the cities listed have a much higher maximum limit. If Grand Rapids is to continue to secure first-class teachers it must increase its salary schedules by several hundred dollars.

In addition to the training and experience exacted of teachers previous to their appointment to positions, contemporary educational theory and practice demand that there shall be evidences of continued growth on the part of teachers while in service. There are obviously numerous ways in which such development may be secured. Attendance at educational meetings, participation in activities connected with social, philanthropic, religious, and cultural undertakings, private reading and study, all carried forward coincident with the school year, are some of these. But the long summer vacation periods likewise afford opportunity for systematic study that has been fully grasped by relatively few persons. The college and university summer school has become an established agency in our educational administration. Its courses are organized quite largely to meet the peculiar needs of teachers of experience. Its term is usually scheduled to fit the convenience of public school men and women. It exists, in fact, primarily to aid those who aspire to grow in service. Foreign and domestic travel, in like manner, yield benefits to teachers that are incommensurable.

While no doubt the best service many a teacher can render to herself and her school frequently will come as the result of a vacation period spent in complete rest and recreation, it is reasonable to expect and to demand that occasionally such vacation periods shall be spent otherwise. Table XLVII and Diagram LXVIII show the manner in which the high-school teachers of

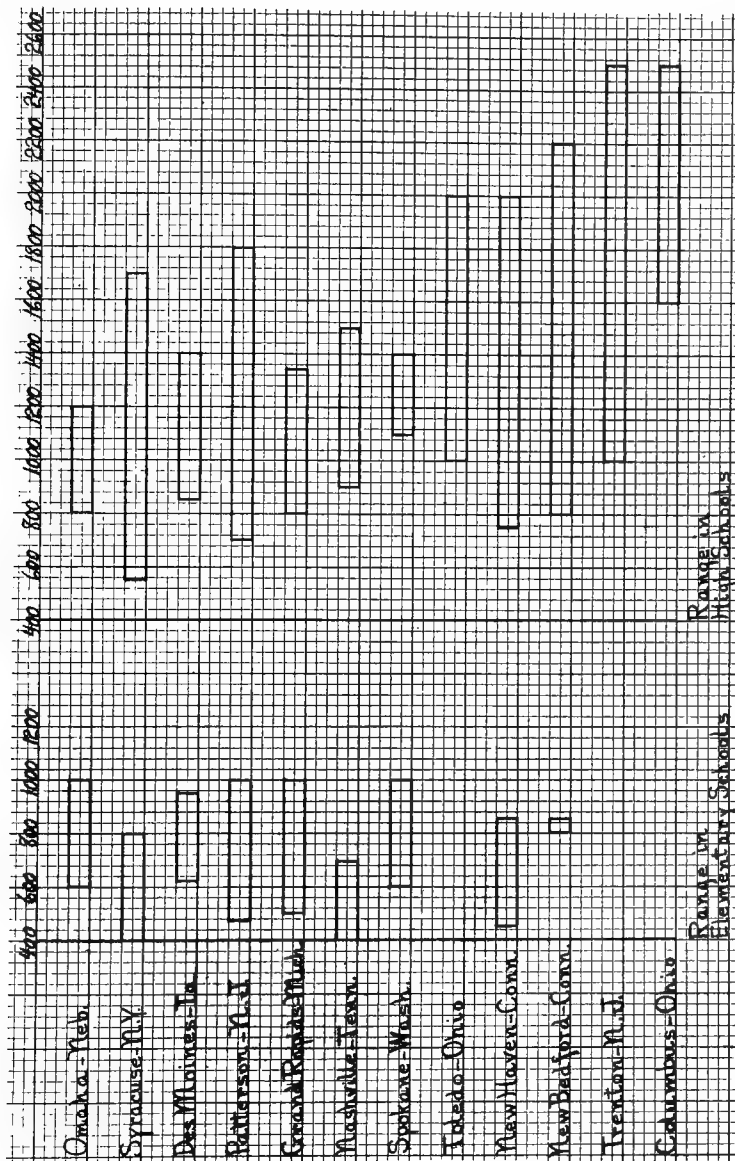


DIAGRAM LXVII—Showing the range of salaries in elementary and high schools of twelve typical cities.

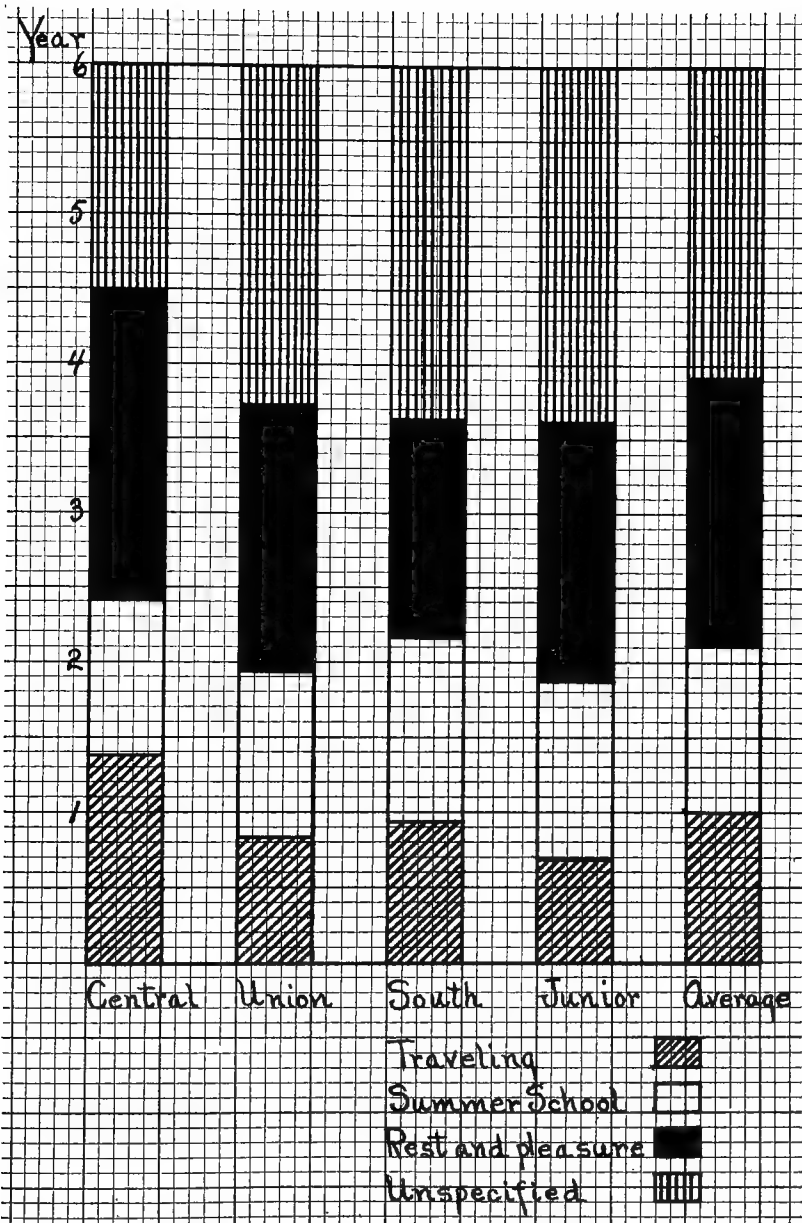


DIAGRAM LXVIII—Showing the manner in which high-school teachers of Grand Rapids have spent the last six summer vacations,

More than sixty-nine per cent of all the teachers have not to exceed three separate subjects to prepare and teach daily, the median being somewhat less than three. The showing is therefore good, albeit there is always a danger of over-specialization as well as under-specialization in conducting school work.

The amount of time teachers spend daily in preparing for their duties is one test of merit and efficiency, though surely not an absolute test. Obviously persons whose work lies in a single limited field, or who are assigned several class sections of the same course, or who teach expressional subjects only, require for outside preparation less time than teachers of other branches. Table XLIX and Diagrams LXXI and LXXII show the variations in this time. The mode seems to be between an hour and a half and two hours; the median is the same; while the range is

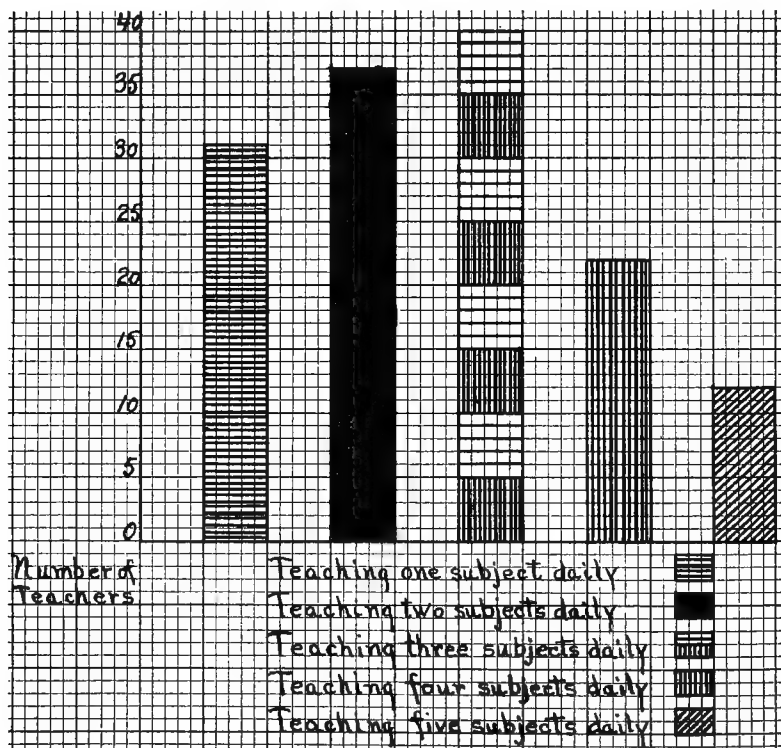


DIAGRAM LXIX—Showing departmentalization of work in high schools.

from less than 30 minutes to more than 200 minutes. Speaking generally, the time given by teachers to the preparation of their daily work seems reasonable.

Conducting classroom exercises is, after all, but part of a teacher's daily routine of work. Hall duty, session-room duty, assisting pupils after school to make up lost work, assisting with student collateral activities, attending to minor cases of discipline—all these demand an added portion of a teacher's energy and time. Table L and Diagram LXXIII indicate the range,

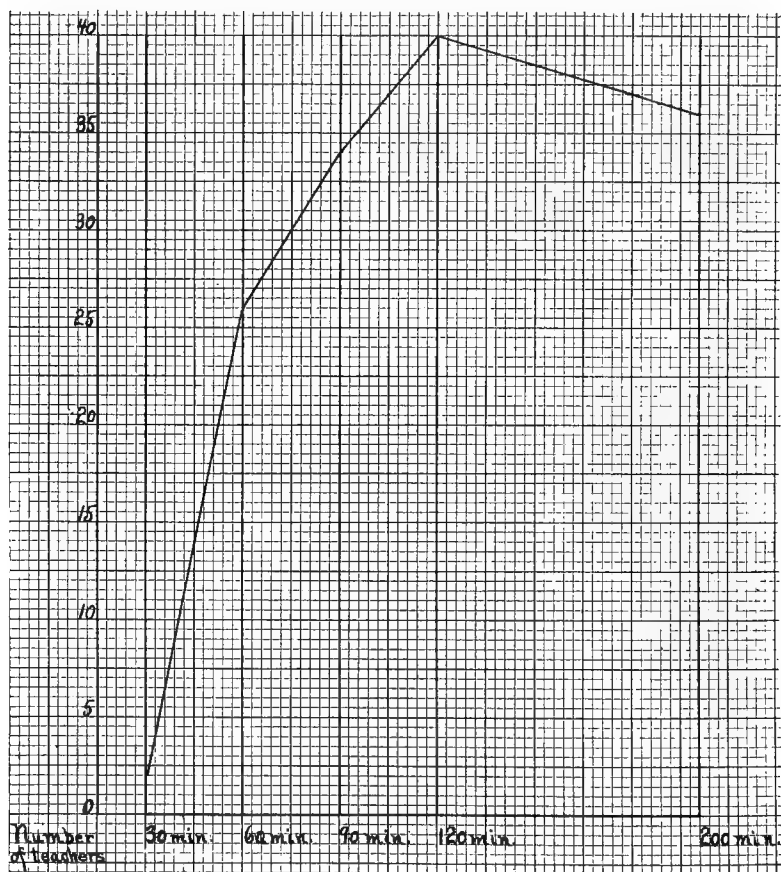


DIAGRAM LXXI—Showing time spent by teachers preparing work.

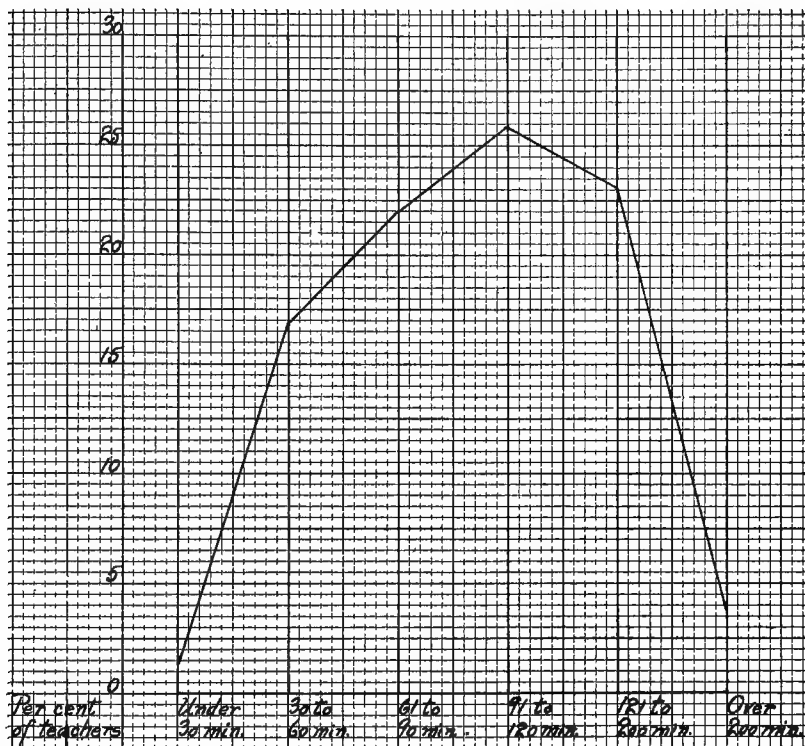


DIAGRAM LXXII—Showing the range in time spent by teachers daily in preparation of school work.

in minutes, devoted by teachers to these tasks. From these it is to be noted that few teachers devote less than an hour per day to such work, whereas the median lies between an hour and an hour and a half.

TABLE L

Range of time spent daily by high-school teachers on duties other than class recitations.

SCHOOL	Number of Teachers			Spending Minutes Indicated			Not Answering, or None
	Under 30	on Duties 30-60	Other 61-90	Than 91-120	Class Recitation 121-200	Over 200	
Central	2	11	6	9	6	6	8
Union	2	9	8	9	7	1	3
South	0	9	10	8	5	0	3
Junior	0	14	4	8	6	0	1
Totals	4	43	28	34	24	7	15
Percentage	2.6	27.7	18.1	21.9	15.5	4.5	9.7
Median:	Sixty to ninety minutes.						

A teacher's efficiency and worth must finally be judged by the character and quality of the results attained by her. School results, however, are difficult of computation. The school product is a human product and none can compute in mathematical terms the teacher's influence in shaping ideals, attitudes, thought processes, reactions and success in human life. Only approximate conclusions can be drawn. It is therefore a mistaken policy which seeks to rank a teacher solely by reason of the term marks she gives out. Nevertheless a high percentage of pupil failures in any school subject is evidence which tends to show that one or more of several unfortunate and unjustifiable conditions exist.

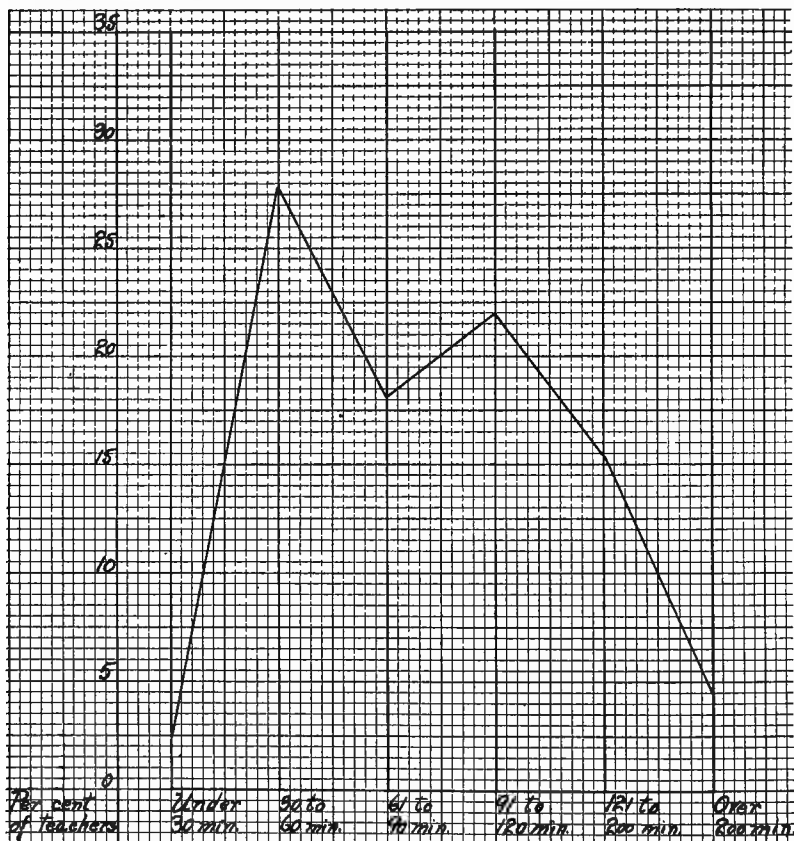


DIAGRAM LXXIII—Showing range of time high-school teachers spend daily on duties other than class recitations.

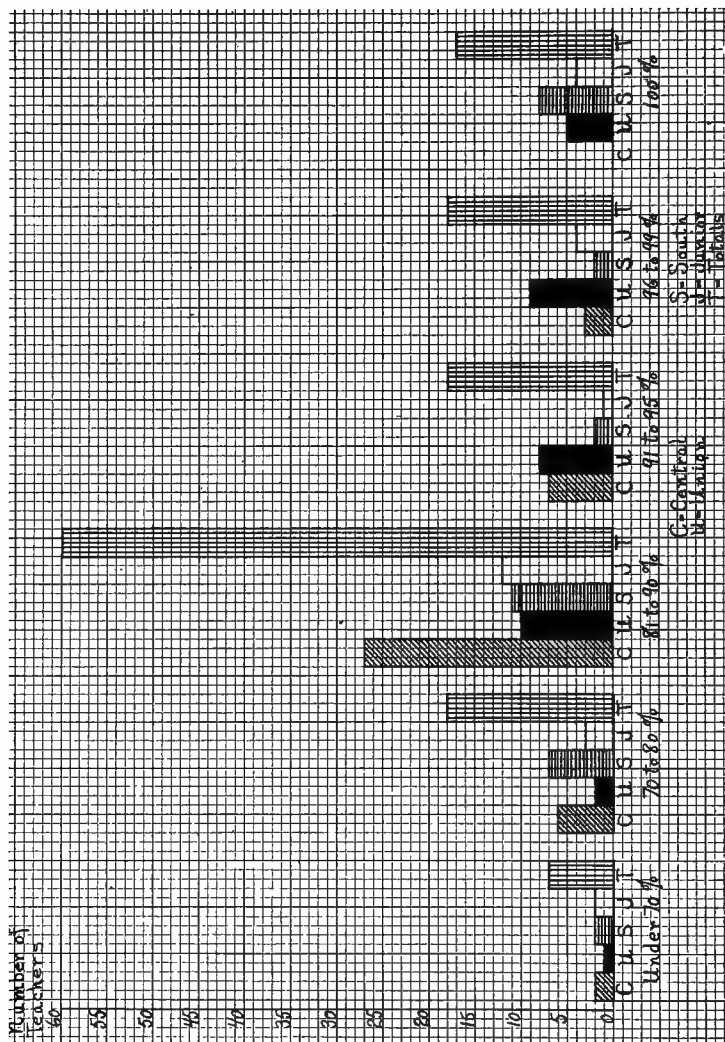


DIAGRAM LXXIV—Showing the range of promotions of pupils by high-school teachers at end of first semester—1915-16.

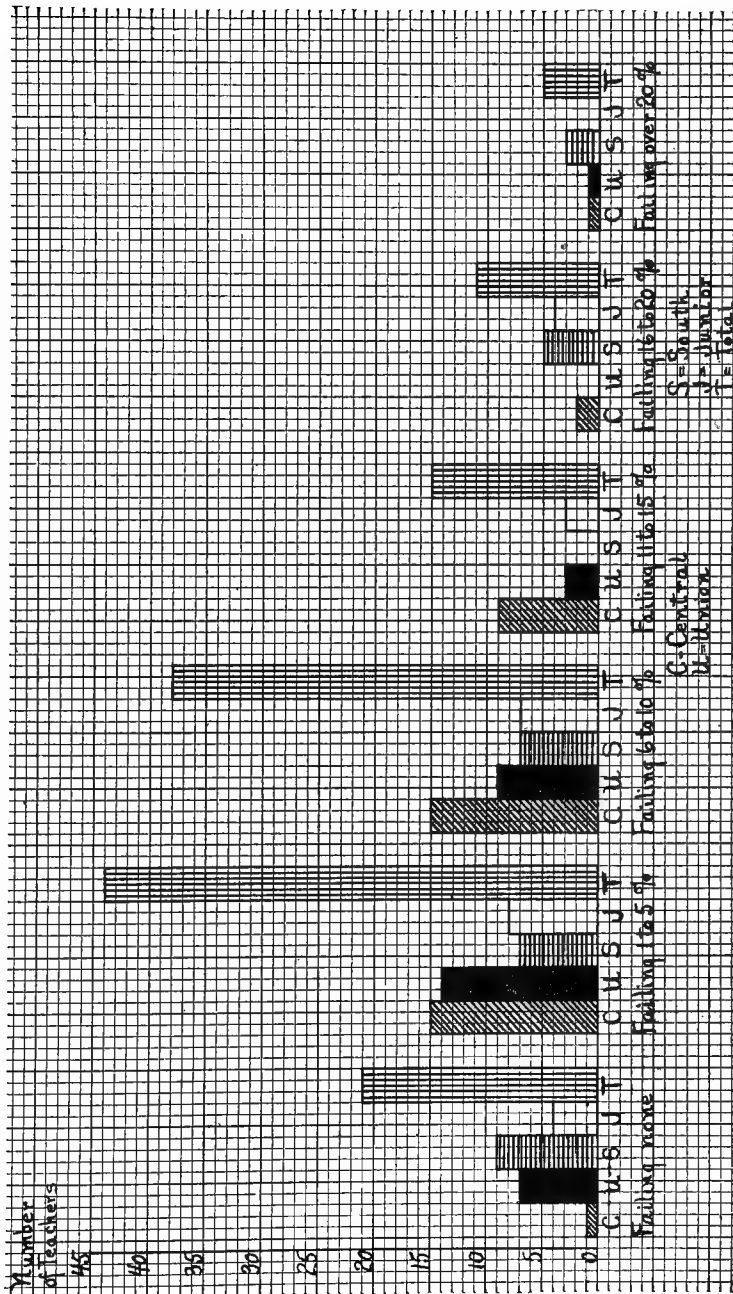
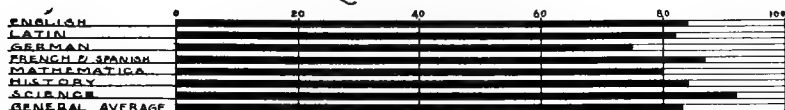


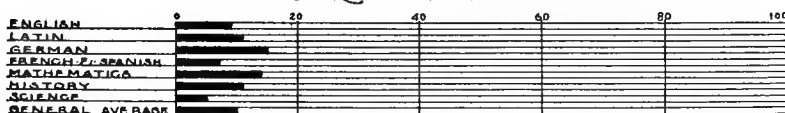
DIAGRAM LXXV—Showing number of high-school teachers failing certain percentages of pupils, Sept. 1915—Jan. 1916.

The following tables and diagrams show the percentages of pupils who were failed, conditioned, and promoted by the several teachers in the Central High School, Grand Rapids, during the four years 1911-1915. The variations not only among the several departments but also among the various teachers within particular departments are notable. The summarizing table and diagram (Table LIII and Diagram LXXVI) are especially interesting. From these it is to be observed that the general average of the entire school for the four years compiled is: Passed, 83.24%; conditioned, 6.6%; not passed, 10.16%. The department of German has the greatest pupil mortality, only 74.69 per cent of all persons electing the subject being given a passing mark and 14.76 per cent being failed outright. On the other hand, relatively few who have elected work in science have been held back from promotions, 91.88 per cent of the pupils pursuing the subject having received term marks of "passed". German, mathematics and Latin, in the order named, are the only departments in which the percentages of pupils "passed" falls below the general average of the entire school, and the two departments of Latin and German are the only ones in which the percentage of "conditioned" pupils is in excess of that of the general average for the entire school.

PER. CENT. PASSED.



PER. CENT. NOT PASSED.



PER. CENT. CONDITIONED.

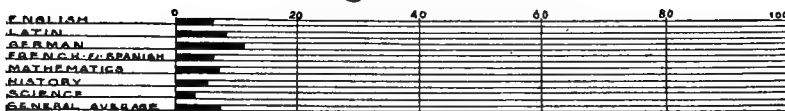


DIAGRAM LXXVI—Percentage of pupils "passed", "not passed", and "conditioned" in the subjects indicated for the years 1911-1915. Central High School, Grand Rapids.

TABLE LIII

Showing the percentages of marks, by departments, in the Central High School of Grand Rapids for the four years, 1911-1915.

SUBJECT	Per Cent Passed	Per Cent Conditioned	Per Cent Not Passed
English	84.22	6.34	9.44
Latin	81.17	8.33	10.50
German	74.69	10.55	14.76
French and Spanish.....	87.12	5.97	6.91
Mathematics	79.75	6.55	13.70
History	83.88	5.11	11.01
Science	91.88	3.39	4.73
General Average	83.24	6.60	10.16

In considering individual teachers and their markings it is to be noted also that wide variations occur. The following extreme cases are to be found.

TABLE LIV

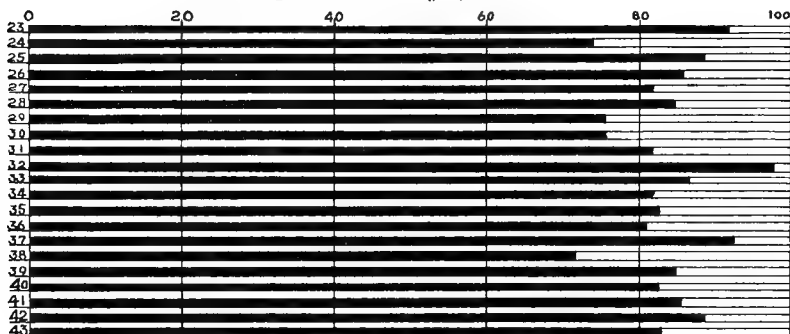
Percentage of pupils passed and not passed by individual teachers in the various high-school subjects at Central High School.

SUBJECT	Teacher's Number (arbitrarily assigned)	Per Cent of Pupils Passed	Per Cent of Pupils Not Passed
English	32	98+	3—
	23	92+	6—
	37	93+	5—
	38	72—	20+
	24	74+	12+
	29	76+	21
Latin	17	80	10
	20	80	10
	22	81	11
	19	74	16
German	61	59.6	23.9
	59	68.0	16.7
	62	79.4	9.9
	60	77.5	11.3
	56	71.5	16.3
French and Spanish	53	79.2	11.8
	55	93.8	3.1
	52	96.1	1.9
	54	79.5	10.8
Mathematics	7	89.4	6.4
	2	69.9	17.5
	8	77.4	18.3
	11	72.3	20.8
History	45	70.3	12.4
	44	79.9	11.6
	46	88.2	8.4
	50	88.1	7.6
Science	64	94.0	5.0
	58	98.0	2.0
	69	96.4	2.0
	70	98.5	1.5
	71	98.5	1.5
	76	95.5	0.0

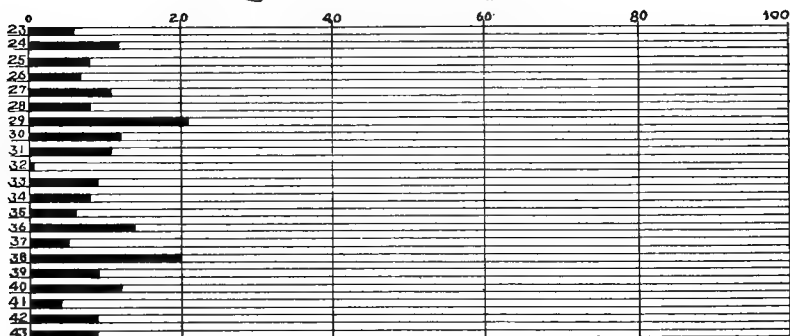
DIAGRAM LXXVII—Percentage of pupils "passed," "not passed," and "conditioned"
at the Central High School according to departments for the years 1911-1915.
A—English; B—Latin; C—German; D—Spanish and French; E—
Mathematics; F—Mathematics for first and second years only;
G—History; H—Science.

A—ENGLISH

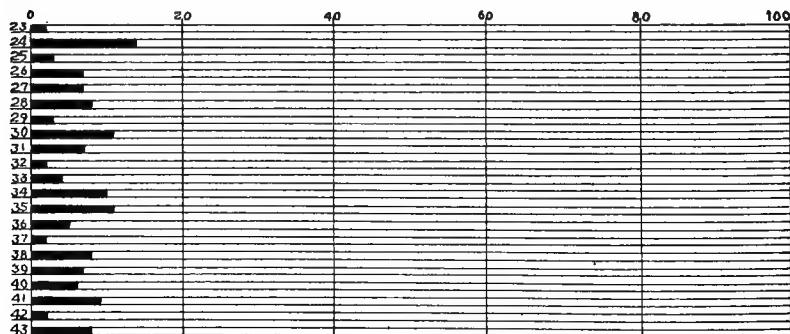
PER · CENT · PASSED ·



PER · CENT · NOT · PASSED ·



PER · CENT · CONDITIONED ·

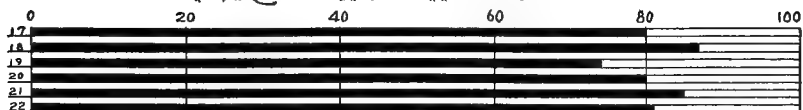


SECONDARY SCHOOLS

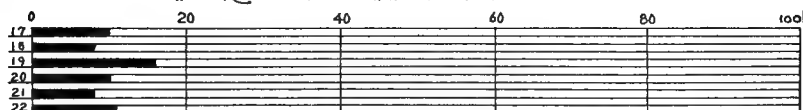
297

B—LATIN

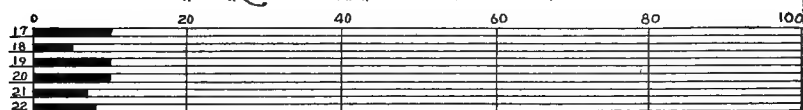
PER. CENT. PASSED.



PER. CENT. NOT PASSED.

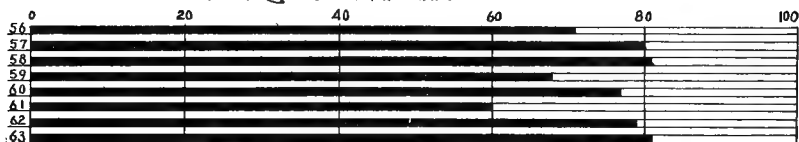


PER. CENT. CONDITIONED.

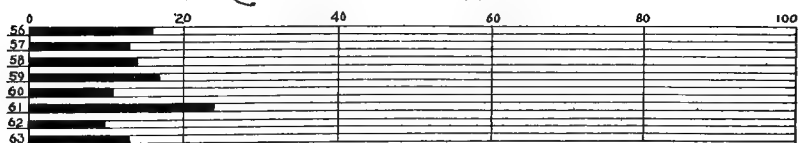


C—GERMAN

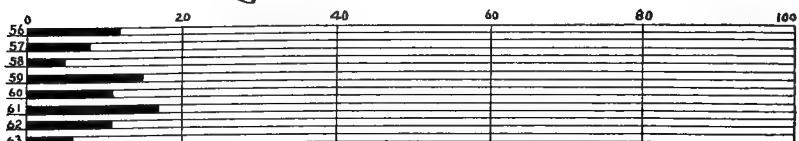
PER. CENT. PASSED.



PER. CENT. NOT PASSED.



PER. CENT. CONDITIONED.

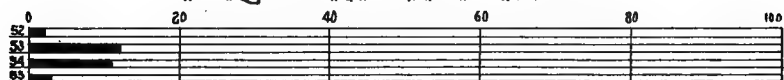


D—SPANISH AND FRENCH

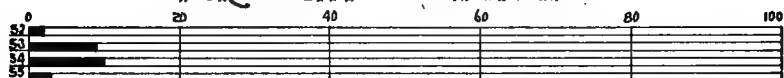
PER · CENT · PASSED.



PER · CENT · NOT · PASSED.

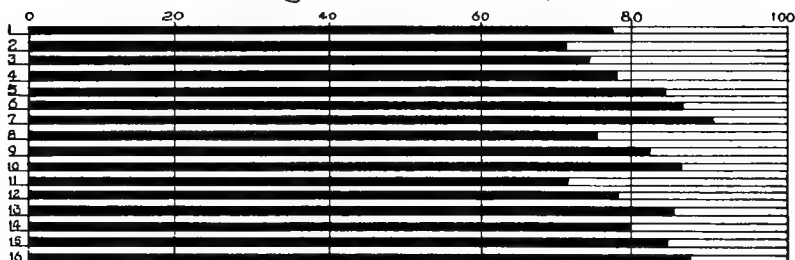


PER · CENT · CONDITIONED.

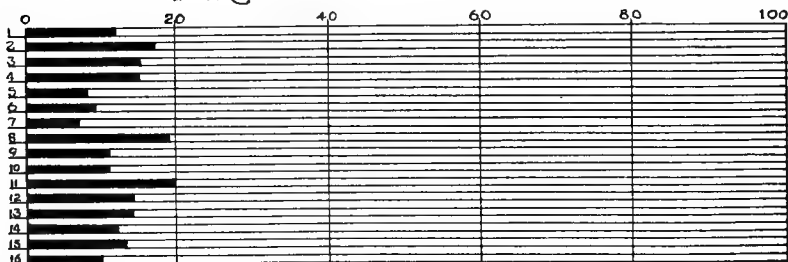


E—MATHEMATICS

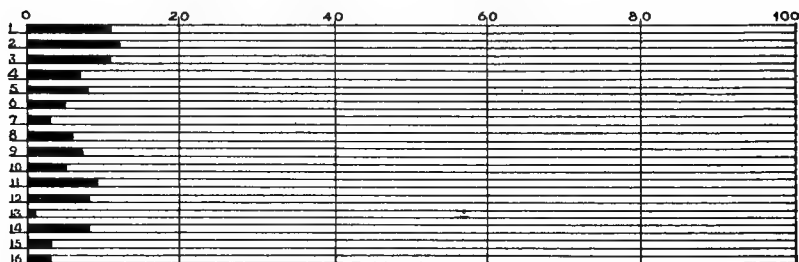
PER · CENT · PASSED.



PER · CENT · NOT · PASSED.

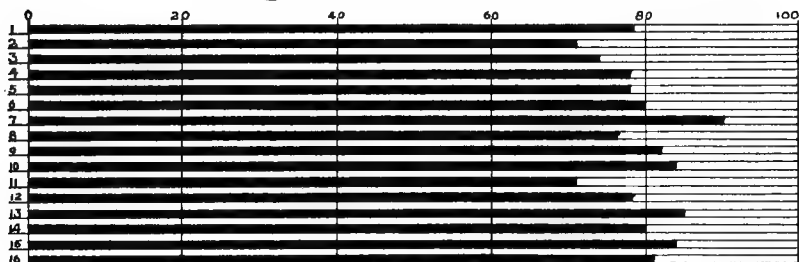


PER · CENT · CONDITIONED.

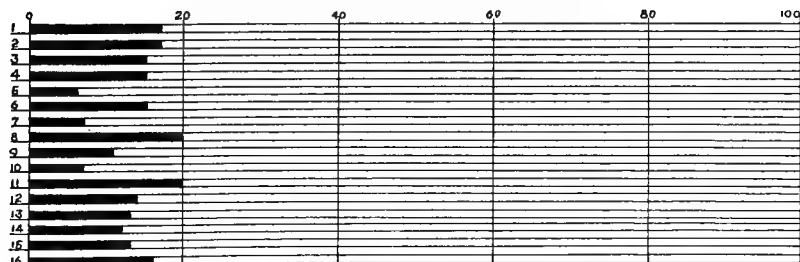


F—MATHEMATICS (First and Second Years)

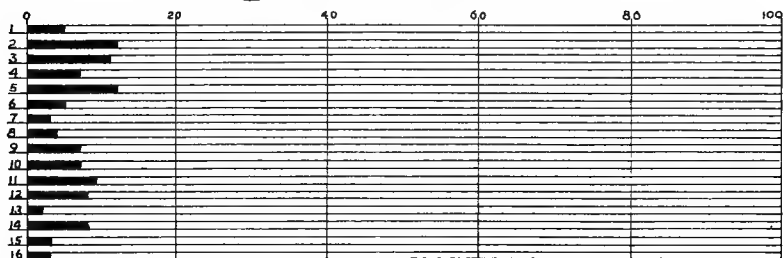
PER · CENT · PASSED.



PER · CENT · NOT · PASSED

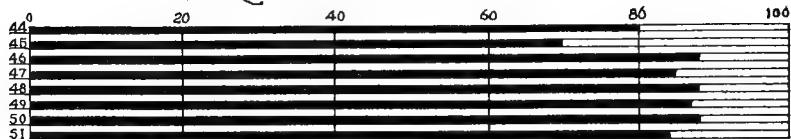


PER. CENT. CONDITIONED

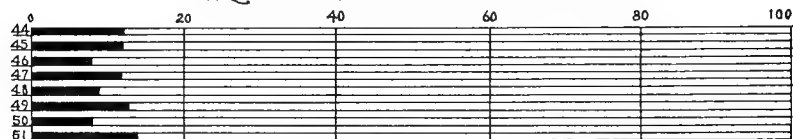


G—HISTORY

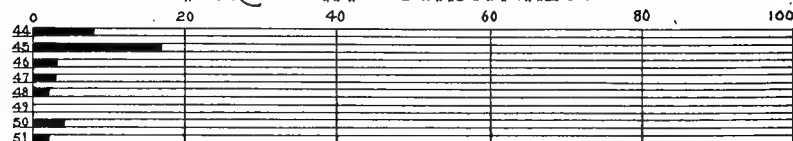
PER. CENT. PASSED.



PER. CENT. NOT PASSED.

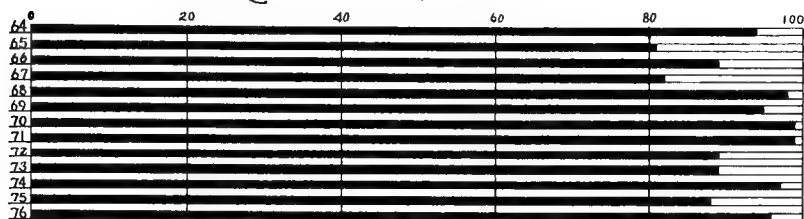


PER. CENT. CONDITIONED.

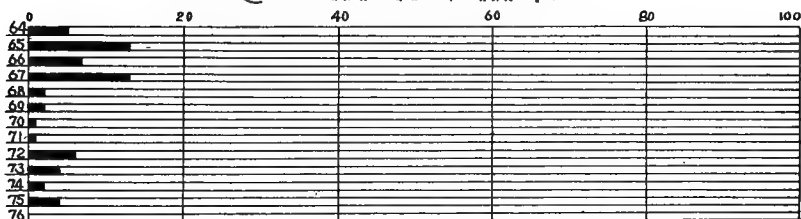


H—SCIENCE

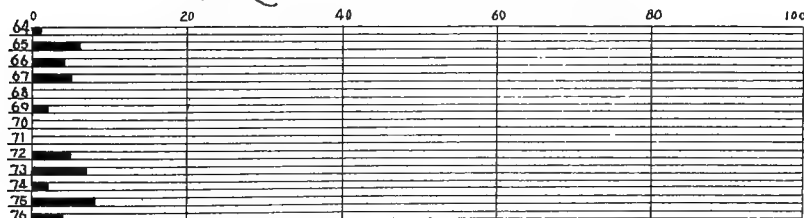
PER · CENT · PASSED.



PER · CENT · NOT · PASSED.



PER · CENT · CONDITIONED.



As stated before, a high percentage of failures among students may not necessarily be a cause for criticism of the department or the teacher concerned. On the other hand, such facts surely give no valid basis for pride or elation. An unusual number of pupils not promoted over a period of four years is rather clear evidence that something in the organization or administration of the work needs correcting. Either the material studied is improperly selected and graded for the pupils pursuing it, or standards of attainment are set unjustifiably high, or pedagogical skill is lacking in the teacher or teachers. There is no

virtue in discouraging pupils. Moreover, it must be remembered that the public high school today is a cosmopolitan school in many senses. No longer are individuals with exceptional literary ability and interest alone being admitted as students. No longer is college preparation the dominant aim. No longer is thoroughness in the sense of complete mastery the accepted pedagogical ideal for every high-school course and for every high-school pupil pursuing it. Some work is designed chiefly to inspire, stimulate and arouse pupils to continued effort within the selected field; some is designed solely to yield appreciation of values. Teachers in the Central High School, as well as in the other schools, will do well to compare their percentages of promotions and failures with the averages of their department and of the entire school, and to seek to discover and analyze the causes that are producing marked variations from common practice.

General Summary

A. Summary of commendations made in reference to prevailing condition:

1. The spirit of co-operation shown by the administrative officers and teachers in the conduct of this survey.

2. The civic pride and spirit that dominate Grand Rapids.

3. The interest taken by the city in its schools and other agencies of culture, and the generous financial support given them.

4. The form of school organization that has been adopted, namely the six-six arrangement of the twelve grades with a junior college supplementing these.

5. The freedom accorded administrative officers by the Board in applying rules and regulations as exigencies may make desirable.

6. The artistic and serviceable character of the high-school buildings recently erected, and the plans for the extensions of these buildings.

7. The policy of providing play and athletic grounds for each school.

8. The organization of recitation periods on the basis of sixty minutes each.

9. The spirit of co-operation and loyalty that exists among principals and teachers.

10. The general form and the desirable definiteness of bulletins and reports that are issued.

11. The policy of giving each student in the junior high

schools an elementary training in each of four forms of manual or domestic arts.

12. The policy of departing from the traditional uniform five-period per week class schedules.

13. The policy of employing, in the future, none but college-bred and professionally trained teachers for all grades above the sixth.

14. The policy of assigning to the several teachers classes in the lower and the upper grades of the school, thus minimizing the tendency to make invidious distinctions of rank among the corps of teachers.

15. The policy of placing teachers of seventh and eighth-grade work in the junior high schools on the same salary schedules as teachers of the higher grades.

16. The general policy of providing in varied ways for the organization of student collateral activities and the modes of control adopted.

17. The provisions for giving the pupils vocational insight and interest.

18. The scope or range of the program of studies provided for the senior high schools.

19. The spirit of democracy and decorum that prevails in the several schools.

B. Summary of adverse criticisms:

1. Omission from the school system of day-continuation or trade schools.

2. The uncompleted character of the reorganization of the schools on the six-six basis.

3. Inadequacy and unhygienic condition of the Junior High School building.

4. Misuse of study periods as at present organized.

5. Inflexibility of administration, particularly for certain types of students in the Junior High School.

6. Organization and administration of certain departments of work in the Senior High School.

C. Summary of recommendations:

1. The establishment of a trade or day-continuation school, possibly within the present Junior High School building.

2. Providing, soon, for additional junior high schools in the city.

3. Re-examining and over-hauling the entire program of studies by the administrative and teaching staffs acting co-operatively.

4. Carrying forward a constant series of educational and administrative experiments, the checking over of results obtained, and the continued adoption of modifications that are found to be advantageous.

5. Improvement of the Junior High School building, so as to give better sanitary and hygienic conditions, less over-crowding of pupils, and adequate facilities for auditorium, shop, gymnastic and recreational activities.

6. The adoption of a long-term building policy for the future.

7. Greater freedom for individual teachers to employ the sixty-minute recitation period as exigencies of the occasion dictate.

8. More attention by teachers to assignments of lessons and to careful summarizing of class discussions.

9. The gradual extension of the school day to include eight hours to be devoted to intellectual, recreational, and social activities.

10. Provision for sessions of the schools during the summer months.

11. The reorganization, by teachers, of the courses of study, particularly of the courses of English, mathematics and history of the seventh, eighth and ninth grades.

12. Allowing credit for one year's successful pursuit of foreign language study if the study is then discontinued by the pupil for adequate reasons.

13. Testing the merits of a two-year general language course in the seventh and eighth grades.

14. Continuing the course in general science in the seventh or eighth grades and making it available for all pupils.

15. Allotting the work in physiology to the teachers of physical training and general science and withdrawing it from the course in reading.

16. Provision for pupils to elect some commercial work in the eighth grade in all the junior high schools and not merely at the Union High School.

17. Testing the feasibility and wisdom of permitting or requiring pupils to carry more than twenty-five hours of school work—academic, manual, and recreational—per week.

18. The adoption of the "point" system of recording credits in the seventh and eighth grades the same as in the ninth and upper grades.

19. The elimination of the ceremonies of graduation at the end of the eighth-grade work.

20. Consideration, by principals and teachers, of the policy

of segregating boys and girls in recitation sections in certain subjects of study.

21. Requiring that none but college-bred teachers of several years of teaching experience and of unusual personalities be assigned to junior high-school teaching positions.

22. The granting of leaves of absence to teachers at frequent intervals for the sake of rest and study.

23. Securing an athletic ground for the South High School and making available for pupils of the Central High School the gymnasium that is designed for their use.

24. Allowing school credit for out-of-school work of appropriate kind.

25. The gradual expansion of the salary schedules of teachers in harmony with the increased cost of living.

26. The continuation of the present Junior College and adequate provision for its maintenance.

27. The consideration of the feasibility of reducing the tuition fee in the Junior College considerably below the present fee.

28. Securing a more definite understanding with the University of Michigan, whereby, during the next year or two of the development of the Junior College, a somewhat more liberal and economic classification of pupils within the Junior College may be secured.

29. Providing, as soon as conditions will warrant, segregated quarters for the junior-college students.

30. Providing, as soon as numbers of pupils will warrant, a second years' offering of the junior-college work.

31. The carrying on of a dignified campaign of advertising for the Junior College and its work.

CHAPTER XII

SPECIAL CLASSES OF THE PUBLIC SCHOOLS OF GRAND RAPIDS

Charles Scott Berry

INTRODUCTION

1. Classes for Retarded Children.
 - a. Auxiliary Classes.
 - b. Ungraded Classes.
2. Open Air Classes.
3. Truant School.

In partial preparation for this report which is a study of the classes for retarded children, the open air classes, and the truant school, the writer spent six days in Grand Rapids visiting schools and studying conditions. During this period he visited the auxiliary school, all the auxiliary classes, a number of ungraded classes, the truant school, and the three open air classes. He met the teachers of the auxiliary and ungraded classes and instructed them how to give certain pedagogical tests to their pupils. All the pupils in the auxiliary classes and five pupils in each of the ungraded classes and the truant school, were given these tests. He also met the principals of the elementary schools and discussed with them methods of selecting pupils for ungraded classes. He distributed to the teachers of the auxiliary and the ungraded classes a questionnaire covering important points connected with their work and training. He not only visited classes and made psychological tests, but he also had conferences with some of the prominent citizens not connected with the school who are interested in the problems of retardation.

Through the courtesy of Mr. W. A. Greeson, superintendent of schools, and Mrs. Cordelia Creswell, supervisor of special

classes, the writer was given every opportunity to cover as much ground as possible in the limited time at his disposal. And he wishes to express his appreciation, not only of the generous assistance rendered him by Supt. Greeson and Mrs. Creswell, but also his appreciation of the kind reception given him by the principals and teachers who ungrudgingly assisted him in every way possible.

1. Class for Retarded Pupils

Grand Rapids has a larger percentage of its elementary-school pupils enrolled in special classes for retarded children than has New York City, Philadelphia, St. Louis, Chicago, Cleveland, or Detroit. This does not mean that Grand Rapids has a larger percentage of backward and feeble-minded children than any of the cities named, for we have no good reason to think such is the case; but it means rather that the superintendent of the Grand Rapids schools has for some years been making a special study of how to reduce the amount of retardation in the elementary schools and the special class for retarded children has been developed as one means to that end. At the present time almost five per cent of the pupils enrolled in the elementary schools of Grand Rapids are in classes for retarded children. The growth in the number of pupils enrolled in these classes over a period of eight years is shown in Table LV.

TABLE LV

Growth in enrollment in special classes during eight years.

School Year	Enrollment in Special Classes	Enrollment in Elementary Schools	Per Cent of Pupils in Special Classes
1907-1908	94	14139	0.67
1908-1909	156	14172	1.10
1909-1910	280	14435	1.94
1910-1911	510	14661	3.47
1911-1912	568	14688	3.87
1912-1913	790	15373	5.13
1913-1914	790	15582	5.07
1914-1915	754	15519	4.86

In the first column is given the school year; in the second column the total enrollment in the special classes for retarded pupils; in the third column the total enrollment in the public elementary schools; and in the last column the percentage the enrollment in the special classes is of the total enrollment in the elementary schools.

From Table LV we see that the enrollment in the special classes for retarded children has increased from less than one

per cent of the enrollment in 1907-1908 to almost five per cent in 1914-1915.

The general policy of the superintendent has been to place in these special classes principally children retarded two years or more; that is, the pupils who are two years or more over age for their grade. The increase over a period of five years in the percentage of pupils two years or more over age enrolled in these classes is shown in Table LVI.

TABLE LVI

Increase during five years in percentage of pupils two years or more over age enrolled in special classes.

School Year	No. in Kindergarten and Grades	No. in Special Classes	Total No. in Grades and Special Classes	Per Cent in Special Classes
1910-1911	676	510	1186	42.9
1911-1912	529	568	1097	51.7
1912-1913	456	790	1246	63.2
1913-1914	352	790	1142	69.3
1914-1915	261	754	1015	74.6

Table LVI gives the number of pupils in the public elementary schools of Grand Rapids two years or more over age, and the percentage of this number in special classes for retarded children (auxiliary and ungraded classes).

In 1910-1911 about forty-three per cent of the pupils two years or more over age were enrolled in special classes; in 1914-1915 almost seventy-five per cent are to be found in these classes.

In forming these special classes the superintendent had two objects in view; first, to reduce the amount of retardation in the regular grades by removing those who blocked the progress of the normal children; and, second, to give the retarded children the training and instruction suited to their needs. Let us consider, first, to what extent he has been successful in reducing the retardation in the schools by the formation of these classes. If the special class is effective, we should expect to find each year a smaller percentage of the total enrollment retarded. Unfortunately we cannot go back of the year 1910-1911 because a different method of reckoning retardation was used prior to that date. In Table LVII is given for a period of five years the percentage of pupils retarded one year, two years or more, as well as the total percentage retarded.

TABLE LVII

Retardation in the elementary schools.

School Year	Per Cent Retarded One Year	Per Cent Retarded Two Years or More	Total Per Cent Retarded
1910-1911	8.19	8.07	16.26
1911-1912	7.13	7.46	14.59
1912-1913	6.55	8.10	14.65
1913-1914	5.15	7.33	12.48
1914-1915	4.58	6.55	11.13

In 1910-1911 the total number retarded was over sixteen per cent of the elementary school enrollment; in 1914-1915 it had fallen to about eleven per cent. That is, during this period of five years the retardation has decreased over thirty-one per cent. Doubtless other factors besides the special class have contributed in bringing about this reduction in retardation, but without question the special class has played an important part.

In this connection it is interesting to note that during the period there has been a comparatively slight reduction in the total percentage of pupils two years or more over age. In 1910-11 eight and seven-hundredths per cent of the total enrollment were retarded two years or more; in 1914-1915 it had only dropped to six and fifty-five hundredths per cent, a reduction of nineteen per cent; but the number retarded one year dropped from eight and nineteen hundredths per cent of the enrollment in 1910-1911 to four and fifty-eight hundredths per cent in 1914-1915, a reduction of forty-four per cent. In other words, the reduction during this period in the percentage of pupils retarded one year was more than twice as great as the reduction in the percentage of pupils retarded two years or more. It is true that we have not considered one factor that would make some difference and that is, the fact that some pupils are put into the special classes who are not retarded two years or more, and we have estimated all the pupils in the special classes to be two years or more over age. However, this factor alone could not possibly account for the difference.

In estimating retardation (and our discussion thus far has been based on the figures taken from the reports) the superintendent has considered at age all pupils in the first grade eight years old, in the second nine, in the third ten, and so on. This is making a very liberal allowance as most of the children enter the first grade when six years of age. Let us consider retarded all children in the first grade eight years old, in the second nine, in the third ten, and so on, in order that we may determine what changes have taken place in this group in the five years under discussion. The results are given in Table LVIII.

TABLE LVIII

Number of pupils retarded one year by a different method of estimating retardation.

School Year	Per Cent Retarded One Year
1910-1911	18.5
1911-1912	15.8
1912-1913	14.4
1913-1914	12.7
1914-1915	12.4

All the pupils in this table are at age by the superintendent's method of estimating retardation.

In 1910-1911 eighteen and five-tenths per cent were retarded one year (using our less liberal standard of reckoning retardation) but by 1914-1915 this had fallen to twelve and four-tenths per cent, a reduction of about one-third. These figures in connection with the figures given in Table LVII seem to indicate that the special class, at least as it is at present organized, is most effective, not in reducing retardation amounting to two years or more, but rather in reducing the retardation of one year or less. This fact seems to indicate that pupils who are so dull as to lose two years or more during the first three or four years of school life cannot keep the pace set by the normal child even though the regular teacher does give them unusual attention. The chief value accrues to the child of average or slightly less than average ability who can make his grade if he receives a little extra help from the teacher. In other words, a policy that would place in the special class those children who cannot complete the first three or four grades without repeating twice or oftener is sound, for most of these pupils will not be able to keep up with the normal pupils no matter how much assistance they may receive. They are destined to march more slowly than their normal fellows, simply because they have less ability.

But is it wise to allow a child to fail in two years' work before he is placed in a special class? While we believe that a policy that looks to placing in special classes all those children who if left in the regular grades would lose two years or more is sound, yet that is quite a different matter from waiting until the child has lost his two years before he is placed in the special class. The present policy of allowing the child to fail in two or three years' work before he is placed in the special class where he belongs is not using that class to best advantage as a means of reducing retardation in the regular grades, for the retarded child has been blocking the progress of the normal children for several years before he is finally put into the special class. A study of repetition in the grades during the five-year period indicated in Table LVIII shows that during this time the greatest reduction in repetition has been in the third and fourth grades, not in the first and second grades, nor in the grammar grades. This seems to indicate that relief comes to the teachers of the third and fourth grades through the removal of the special-class pupils. Yet it is the first and second grades that stand most in need of relief. During the first semester of 1915-1916 the percentage of repeaters in the first and second grades of the Grand Rapids schools was greater than in any other two grades. Furthermore the primary teachers have a larger number of pupils to teach than do the teachers of the grammar grades. In 1914-1915 the

number of pupils per teacher based on the average belonging, was for the grammar grades twenty-seven and two tenths and for the primary grades thirty-two and three tenths. That is, the primary teachers have on the average five more pupils per teacher than the teachers of the grammar grades.

Not only do the teachers of the first and second grades have more pupils than the teachers of the higher grades but among these pupils are to be found most of the backward and defective children, for these children are commonly not put into the special class until they have reached the third grade. In other words, the special class, one function of which is to reduce the repetition in the regular grades, is not helping at all where help is most needed, in the first and second grades.

Why not follow the plan of selecting the pupils for the special class from the children who have failed in the first half of the first grade's work? If this method of selection were adopted, the first and second-grade teachers would get relief at the earliest possible period. By this method of selection the special class would become most effective in reducing retardation where reduction is most desirable; viz., in the first and second grades.

From the standpoint of the good of the backward child an early selection is highly advisable. If he is allowed to fail two or three times before he is put into the special class he has become schooled in failure before he gets even a fair chance, for surely he has not had a fair chance if he has been expected to do more than his ability enables him to do. On the other hand, if failure in the first term's work in the first grade was due to poor health, or poor teaching, the child now has an opportunity to make good as he is given exceptional opportunities, and, if he makes good, he is returned to his regular grade. But if he shows he has not the ability to keep up with the normal child, even though under an expert teacher, he is evidently where he belongs. From every point of view it is advisable to put a child into a special class, or give him special assistance, as soon as he has shown that he stands in need of such assistance. And if a child fails in the first half of his first grade's work, that fact in itself is conclusive evidence that his case needs investigation—that he needs help of some kind.

a. Auxiliary Classes

(1) History and Organization.

The classes for retarded children of the public schools of Grand Rapids are divided into auxiliary and ungraded classes.

The auxiliary classes are for the mentally defective children, while the ungraded classes provide for the backward pupils.

The first auxiliary class was started in the summer of 1910. In the fall of that year the auxiliary school consisting of four classes of twelve pupils each was organized. Since that time eight other auxiliary classes have been organized in different parts of the city in connection with the regular public schools. The auxiliary school which is located in a separate building is organized on the departmental plan, having four departments—kindergarten, academic, manual training, and domestic science.

The increase in the number enrolled in these classes since the organization of the auxiliary school in 1910 is shown in Table LIX.

TABLE LIX

Increase in number of pupils in auxiliary classes over a period of five years.

School Year	No. in Auxiliary Classes
1910-1911	68
1911-1912	70
1912-1913	96
1913-1914	93
1914-1915	150

In the five years of the existence of the auxiliary classes the enrollment has more than doubled until at the present time it is equal to almost one per cent of the total enrollment of different pupils in the elementary schools.

In Table LX is given the range in mental and chronological ages that is to be found in each of the auxiliary classes including the auxiliary school.

TABLE LX

Range in chronological and mental ages of pupils enrolled in auxiliary classes and auxiliary school.

SCHOOL	C. Age	M. Age
Auxiliary	8-18	5.0-10.0 inc.
Buchanan	7-12	6.2- 8.2
Coldbrook	9-16	8.0-10.2
Diamond	9-15	6.0- 9.8
Franklin	8-13	5.2-10.6
Jefferson	7-14	6.2- 8.8
Junior High	12-15	8.8-11.4
Straight	7-11	4.0- 9.2
Widdicomb	9-15	6.0- 9.2

C. Age, Chronological Age; M. Age, Mental Age.

This table shows that the auxiliary classes although situated in different parts of the city are much alike in respect to the range chronological and mental ages, with the exception of the Junior High auxiliary class which is made up of high grade boys and girls ranging in mental age from 8.8 to 11.4 years and in chron-

ological age from 12 to 15. Some of the high grade boys and girls of the other auxiliary classes were transferred to the Junior High class, which is centrally located, in order that they might be given the special training suitable to their needs.

(2) Selection of Pupils

The children who are put into the auxiliary classes are taken from the grades and from the classes for backward children. The principal commonly notifies the supervisor of special classes that she has some children in her school that she would like to have examined with the view of putting them into the auxiliary class if they are found to be mentally defective. The supervisor examines these children by means of psychological tests and if they are found to be so retarded mentally that there is little hope of their ever catching up with the normal child, they are assigned to the auxiliary class. Occasionally a child is put into the auxiliary class to receive some extra help in order that he may catch up with his normal fellows and return to his grade, but commonly only pupils that are considered to be mentally defective are put into these classes. Children are also brought to the supervisor by teachers and parents for examination at the psychological clinic. These children upon examination may be recommended for the auxiliary class.

It is a significant fact that these children at the time they are given the psychological examination and recommended for the auxiliary class are not given a medical examination. But after they have been assigned to the auxiliary class the teacher of that class is supposed to take them to a physician for examination sometime during the year. Commonly the physicians donate their services as the board of education has made no provision for the medical examination of these children. In the judgment of the writer this is a very serious mistake. No child should be assigned to an auxiliary class without first having received a careful medical examination. Many of these children are suffering from physical defects that only the physician can readily detect. No matter how carefully the psychological examination may be made it alone is not sufficient. Much mental retardation is due to physical causes which may be removed, but only the physician, not the psychologist, is capable of making the physical examination. It is a sad waste for a teacher to spend energy in trying to overcome a mental defect due to a removable physical cause. At the present time the practice in most of the large cities is to have the two examinations—medical and psychological: both are necessary. But not only should every child be given a medical examination before being assigned to one of

these classes, but he should be re-examined at least once a year as long as he remains in the auxiliary class.

(3) Equipment.

The auxiliary school is housed in an old building that is too small and poorly arranged for the work that is being attempted. The playground in connection with the school building is also too small, and the school garden is so small that it can be used only for demonstration purposes. The school building is not centrally located so that most of the children are compelled to take the street car to and from school. As far as the equipment for the school work proper is concerned it is satisfactory. It would not be advisable to make any marked increase in equipment without erecting a new building. It seems to the writer that the solution of the problem here is not to erect a new building but rather to use the present building for the lower-grade mental defectives and provide for the higher grades in the auxiliary classes and in a school centrally located. If all the lower-grade children were taken out of the auxiliary classes, it would lighten the burden of the auxiliary class teacher by relieving her of some of her most hopeless cases, and by giving her a more homogeneous group with which to work. Furthermore it would be a decided advantage for the lower-grade children to be thrown together in a school of this kind for they are the ones that derive the least satisfaction, and suffer the greatest annoyance from associating with normal children.

To carry out the above suggestions would be to go a step further in the direction of existing tendencies, for the auxiliary school at the present time has a larger percentage of low-grade children than the auxiliary classes which have been organized in connection with the regular schools.

Most of the auxiliary classrooms are pleasant and satisfactorily equipped. However, there are some marked exceptions. At the Widdicomb School the auxiliary class three days in the week occupies a miserable, poorly lighted cooking room in the basement, and the other two days a basement room used for physical training which is only a slight improvement over the cooking room. This is exceedingly unfortunate, as the children are working under most adverse conditions. In fact rather than to continue to hold the class in such a room it would be better to abolish it entirely, as much needed as it is.

In the Straight School the auxiliary class occupies a cloak room which is totally inadequate in every respect. It is not surprising that the teacher of this class has decided to go back to regular grade work another year. To teach all the year in such a

room must necessarily prove depressing both to pupils and teachers.

The room which the auxiliary class occupies in the Diamond School, while much better than the auxiliary class rooms of Widdicomb and Straight, still leaves much to be desired as it is too long and narrow and is not properly lighted. If the auxiliary class is to be regarded with approval by parents and pupils, it should occupy, in every instance, a room as good as the other classrooms in the school building.

Most of the rooms are supplied with movable seats, but some are not. It is important that every auxiliary room be provided with movable seats in order that the room may be used for a variety of purposes which is impossible with the fixed seats.

The equipment for the regular school work is on the whole satisfactory. The teachers for the most part are able to get what they need without marked delay. Neither are the teachers held down to the same kind of equipment in every case. They are given opportunity to work out their own ideas without undue interference from above.

(4) Training and Instruction.

In order to study the work in reading, arithmetic and writing that is being done in the auxiliary classes of Grand Rapids as compared with the work of similar classes in Detroit, the writer requested each teacher to give pedagogical tests to each pupil in her class of a mentality of six or above.

The following selection was used as a reading test:
"Rex, was a little black dog. He was Kate's dog. Rex ran away from home one day. His friend, the big brown dog next door, went with him. They ran along all the morning. It was nearly noon and the dogs were hungry. They had not had a thing to eat since morning. Rex saw a rabbit hop across the road. His friend saw it too. They ran after the little rabbit. The rabbit tried to run away but the big brown dog ran faster. He soon caught the rabbit and the two dogs ate it. They were now very tired and lay down to rest. After a while they started on again. Towards night they became hungry again, but could find nothing to eat. They wished they were home to get a nice big bone. Kate and Mary the little girl next door, always gave their dogs a bone at night. At last they saw a little gray object running across the road. The dogs thought it was another rabbit. They ran after it but found it was only a cat. Then they walked on again wondering where they were and what they were going to find to eat. Soon the places began to look familiar. They turned the next corner and there in front of them were their homes and Kate and Mary at the gate looking down the road. The dogs

bounded joyfully toward their mistresses. How glad they were to be home again. They were each given a large bone and were so glad to get home that they decided never to run away again."

The following instructions were given to the examiners: First, secure the name, age (date of last birthday), and grade of the subject. Now present the story and say: "I want you to read this story aloud until I tell you to stop." Allow one minute from the time the subject pronounces the first word. After the subject has finished reading say: "Now tell me in your own words what you have read." After the subject has told as much of the story as he remembers ask him the following questions:

1. What was Rex?
2. Whose dog was he?
3. What did Rex do?
4. What went with him?
5. How long did they run?
6. How did they feel then?
7. What did Rex see?
8. What did the dogs do?
9. What did the rabbit do?
10. Which caught the rabbit?
11. What did they do with it?
12. What did they do after eating the rabbit?
13. When rested what did they do?
14. How did they feel towards night?
15. Why did they wish to be at home?
16. Who gave them bones at night?
17. What did they see run across the road?
18. What did they think it was?
19. What did they find out it was?
20. What did they wonder?
21. How did places begin to look?
22. What did they see when they turned the corner?
23. Who were at the gates?
24. What did the dogs do?
25. What were they given?
26. What did they decide to do?"

In addition to the above directions the examiners were instructed to keep a record of all mistakes made. In case the subject hesitated in pronouncing any word the examiner was instructed to pronounce the word for the child and count it an error. The amount of the story read and reproduced by the subject was estimated by means of the questions which cover the main points of the story. If the subject read only as much of the story as is covered by four questions, and when asked to tell in his own words what he had read if he answered two of these questions he was given credit for having reproduced fifty per cent of the story. And if on being asked the four questions he answered

three of them correctly he was credited with a reproduction of seventy-five per cent of the story.

The test in arithmetic consisted in giving answers to the following twelve oral problems:

"1. James gave me two marbles and Arthur gave me one. How many marbles did they give me?

2. John had five apples and he gave three to his brother. How many apples did he have left?

3. If one pencil costs two cents how much money will it take to buy three pencils?

4. If oranges cost two cents apiece how many oranges can you buy for four cents?

5. A farmer had four horses and bought three more. How many horses did he then have?

6. William had nine marbles. He lost three. How many marbles did he have left?

7. How much must I pay for three tops, if one top costs three cents?

8. If one apple costs four cents how many apples can you buy for eight cents?

9. Willie had seven pennies. His father gave him six more. How many pennies did he then have?

10. There were twelve apples on a tree. James knocked off four. How many apples were left on the tree?

11. If marbles are worth four cents apiece how much will four marbles cost?

12. If one notebook costs three cents how many notebooks can you buy for fifteen cents?"

The examiners were instructed to read each problem slowly and distinctly to the subject. If the subject did not understand the examiner was to read the problem again. The subject was given as much time as he desired to solve the problem. Each examiner was to give each child the twelve problems regardless of whether he gave the correct answers or not. The subject was given credit for the number of problems correctly solved.

In giving the writing test the examiners were told to give the subject the following instruction: "Write this sentence as fast and as carefully as you can until I tell you to stop: 'My dog plays with the ball.'" Time two minutes. The subject used a pencil and wrote from a typewritten copy of the sentence. The subject was given credit for the average numbers of letters written in one minute.

In Table LXI are given the results of the three tests arranged according to mental age of the subjects, not only for the auxiliary classes of Grand Rapids, but for those of Detroit, Michigan, as well. In addition the results of testing one hundred and two normal children between seven and eight years of age of the Detroit schools are given on the last horizontal line of the table.

Although the table is self-explanatory, it might be well to indicate the significance of some of the figures that appear in the

TABLE LXI
Results of the Reading, Arithmetic and Writing Tests in the Auxiliary Classes.

				READING						ARITHMETIC				WRITING											
				Words Read in One Minute				Mistakes		Per Cent of Amount Reproduced		Number of Problems Solved		Number of Letters in One Minute											
				M. Range		1st Q		3rd Q		Without Help		By Questions		M. Range		1st. Q		3rd Q		M. Range		1st. Q		3rd Q	
CITY				M. Age	No.	M. Age																			
Grand Rapids				6	24	21	0-58	13	97	8	0-18	33	0-100	68	0-100	2	0-9	1	3	14	0-32	2	17		
Detroit				6	71	27	0-192	17	44	9	0-29	20	0-50	66	0-100	2	0-12	1	4	22	0-73	9	32		
Grand Rapids				7	38	35	10-103	16	69	7	1-21	33	0-100	67	0-100	4	0-12	2	8	23	0-74	13	40		
Detroit				7	157	36	10-190	24	57	8	0-28	33	0-100	66	0-100	5	0-12	2	9	31	0-63	18	42		
Grand Rapids				8	34	50	15-139	24	82	6	0-13	57	1-100	83	0-100	9	2-12	7	12	42	8-74	30	50		
Detroit				8	116	52	16-160	37	82	6	0-18	45	0-100	75	14-100	9	0-12	6	11	43	0-116	29	55		
Grand Rapids				9	25	69	11-180	39	93	5	0-11	57	83-100	83	37-100	11	4-12	8	12	48	16-95	25	60		
Detroit				9	65	82	17-224	49	105	4	0-17	66	0-100	83	0-100	10	0-12	9	12	56	17-94	40	65		
				C																					
Detroit				Age 7	103	27	9-131	20	42	9	1-19	20	0-100	66	0-100	2	0-10	1	4	21	0-62	9	30		

Explanation: No., number of cases tested; M. Age, mental age; M., Median; 1st Q, first quartile; 3d Q, third quartile; C. Age, chronological age.

first horizontal line under the division entitled, "Words read in one minute." The 21 which appears under "M", the median, means that of the 24 children tested between six and seven mentally that as many read less than 21 words as read more than that number of words. The numbers 0-58 under "Range" mean that the poorest member of this group read no words and the best one read 58 words. The 13 under "1st Q.", the first quartile, means that twenty-five per cent read less than 13 words, and the 37 under "3d Q", third quartile, means that seventy-five per cent read less than 37 words in the one minute. From the first and third quartiles we see that fifty per cent of the pupils read between 13 and 37 words in the one minute.

The marked similarity in the attainments of the children of like mental age in Grand Rapids and Detroit is most surprising. However, Detroit has slightly the better of it as far as the median number of words read is concerned, although the difference is not significant. In the median number of errors there is very slight difference; also in the amount reproduced the two cities are on a par. The same may be said in regard to the number of problems solved. However, when we come to the average number of letters written in one minute Detroit has the advantage all the way through. The similarity of results obtained is all the more striking when we bear in mind that in both cities the tests were given by many different examiners, as each auxiliary class teacher tested her own pupils. In the judgment of the writer the marked uniformity of results under such circumstances means that in both cities the auxiliary class teachers are teaching these children about as much reading, arithmetic and writing as they can assimilate. If such were not the case, we should expect the two cities to make unlike showing.

On the last horizontal line of the table are given the results obtained by testing one hundred and two normal children between seven and eight years of age in the Detroit public schools. It is interesting to note that these normal children do not make as good a showing as do the auxiliary class children who are between seven and eight mentally. In fact, the auxiliary children have the advantage in each one of these tests. But when we compare the normal children with the Detroit auxiliary children who are six years mentally we discover that the results are almost identical. In other words, in pedagogical attainments the auxiliary child between six and seven years mentally is about on a level with the average normal child between seven and eight years chronologically. We have little reason to think that the psychological tests place the child lower than he belongs, as practically all the work of recent years seems to indicate that the

Binet tests rank the younger child too high. If this is the case, than the difference in pedagogical attainments between the normal child of seven chronologically and the backward child of seven mentally is to be accounted for in two ways; first, by the fact that the auxiliary child has been in school so much longer than the normal child of the same mental age, for nearly all the children in the auxiliary classes are retarded two years or more mentally; and, second, because of superior instruction, for the teachers of the auxiliary classes are a selected group commonly chosen from the most successful grade teachers and in addition have received spécial training for their work.

In looking over the results for the different auxiliary classes of the Grand Rapids schools the writer does not find that there is much variability in medians for the children of like mental age, except in the case of one class where the work in reading is considerably below the median for the auxiliary classes as a whole.

From what the writer saw and learned of the handwork that is being done in these auxiliary classes he is of the opinion that it is up to the standard of the work in most cities of like size. The older children are given regular manual training work in some cases by the auxiliary class teachers; in other cases by the regular teachers of manual training and domestic science. In some of the auxiliary classes part of the manual training and domestic science work is done in the auxiliary classroom.

The writer questions the wisdom of equipping any of the auxiliary or ungraded classrooms for the regular manual training and domestic science work. When the boys and girls of the special classes are far enough advanced for this kind of work it would seem economical, instead of duplicating apparatus, to have these children receive this kind of training in the regular domestic science and manual training rooms which are thoroughly equipped for this purpose. Then too if the manual training and domestic science work of these special classes (auxiliary and ungraded) were given by the regular teachers of the manual arts instead of being given by the auxiliary or ungraded class teachers, as is being done in some schools, the work would be much improved. Grand Rapids is fortunate enough to have some teachers of the manual arts who are very much interested in the teaching of backward and defective children, so the problem of securing the right kind of teachers is not a serious one. It would of course be necessary to have the auxiliary children given this work in special classes, as they are backward not merely in academic work, but in manual work as well. But not only should this work be given by special teachers of the manual arts, but much more of

it should be given to the auxiliary children than they are now getting. If possible one period a day, instead of one or two per week, should be devoted to this work.

If the above plan were adopted, the children would get not only more work in the manual arts but they would get it under more favorable conditions as the work would be given in the rooms thoroughly equipped for that purpose and by special teachers of those subjects. In the second place, the teacher of the auxiliary class would be free to devote her attention to the children who were not able to take the work in the manual arts, as it rarely happens that a teacher has a class sufficiently advanced that all can be given this work with profit. Then too it is expecting much of the auxiliary class teacher to ask her to be well prepared in manual training and domestic science work, as well as being a specialist of the first rank in the teaching of academic subjects. However, in event that the changes suggested were to be carried out it would be necessary for the teacher of the auxiliary class to keep in close touch with the work the children are doing in the manual arts in order that she might correlate that work with their other activities. She also should have sufficient knowledge of basketry, caning, modeling, etc. so that she could direct the work of the younger and more deficient children along these lines.

(5) The Teachers.

The auxiliary class teachers are well trained, enthusiastic and intensely interested in their work. In Grand Rapids these teachers are paid \$100 more per annum than they received as grade teachers. This has made it possible to secure for this work some of the best grade teachers. All the teachers of auxiliary classes have had experience in teaching normal children, and all have attended at least one summer school in preparation for the work in which they are now engaged. Furthermore, these teachers receive one hour's instruction every week in the correction of speech defects.

The plan that has been pursued thus far of selecting only successful grade teachers for auxiliary classes and requiring them to make special preparation for the work, as well as enabling them to continue their preparation while in service, is to be commended. Only the well trained, resourceful, enthusiastic teacher can hope to succeed in teaching backward and defective children.

(6) Supervision.

The general plan of supervision is very good. The supervisor requires the auxiliary class teacher to secure a photograph of each pupil soon after he is admitted to her class. This photograph is kept on file at the office of the supervisor. Each teacher

is expected to visit the home of each pupil in her class at least once during the school year. And some of the teachers make many more visits than are required because of their interest in the children and in winning the support of the parents. The supervisor has supplied all of the teachers with suggestive schedules and outlines of the work in the different subjects. The teacher is not supposed to follow these outlines; they are simply to help her in arranging her work so she may get the best results. Each teacher has a book in which she keeps a record of the work done each day. At the end of the month the teacher submits to the supervisor a statement of the progress of her class in the various activities they have been pursuing. During the second half of the year the teacher gives each child a psychological examination, and at the end of the year she files with the supervisor a report of the progress of each child in her class for the year. Along with this report she submits samples of the child's work. The supervisor plans to visit each auxiliary class at least once a month.

By this plan of requiring each teacher to file at the supervisor's office a report of the child's mental development as measured by psychological tests, and of his pedagogical progress as measured by the samples of work done, as well as by the judgment of the teacher, a very complete record of the child's growth, interests, and attainments has been secured by the time he leaves school. Such a record should be of great value in helping to determine what should be done for the child upon leaving school.

Some of the teachers complain that it is a good deal of trouble to make out these reports, and feel that perhaps their time might be spent to better advantage. To omit any of the data that are now required would, in the judgment of the writer, be a great mistake. We know none too much about the backward and defective child and the character of his development. Furthermore, the data secured by means of the psychological examinations and from the reports of the teachers have already proved to be of value in connection with the juvenile court cases, for during the present year the supervisor of special classes has been asked to examine more than fifty cases for the juvenile court and many of these cases either were or had been in the auxiliary classes.

(7) After Care.

Unfortunately little is done for the children of the auxiliary classes after they leave school. Some are supported by friends and relatives, some become wholly or in part self-supporting, some become a burden to society, some get into trouble and are

found in juvenile court, and others get married and increase their kind so that the auxiliary class of the future may be well filled. The after care of the mentally defective child is a problem that is being very generally discussed in many of our cities, but no city has succeeded in solving it. In fact, there are two distinct questions connected with the after care of the boys and girls who are mentally defective; first, "How can they become self-supporting"; and, second, "How can they be prevented from increasing their kind?"

Let us consider the former of these problems first. How can we do more to make these boys and girls self-supporting? The sub-normal boy upon leaving school is not prepared for any specific line of work. He has received merely a general education, but the same thing may be said of the normal child upon finishing the elementary school; he is not prepared for any particular line of work. However, there is one important difference between these two types of children that has not been sufficiently emphasized. The normal boy in learning a trade, or entering a profession, or on going into business of any kind, is competing on equal terms with his fellows; the sub-normal individual never is. If he gets a position how can he hope to keep it in the face of normal competition? He cannot hope to compete successfully with his normal fellows in any line of work unless he has some advantages at least. It is possible to give him some chance by preparing him for some specific line of work during the last two years he spends in the elementary school. An attempt is being made in this direction in several of our cities by the establishment of prevocational schools where the boys and girls are given an opportunity to take a maximum amount of work in the manual arts. But it seems to the writer that we have not yet gone quite far enough. During these two years these boys and girls should be prepared for some specific line of work which they can take up at once upon leaving school and by means of this work become self-supporting.

Grand Rapids has made a beginning in the right direction by establishing at the Junior High School an auxiliary class for high-grade boys where they are given a maximum amount of hand-work. In fact, some of them have become very proficient in basketry. But the question arises in connection with this work as to how they are going to use this skill to gain a livelihood when they leave this class. Even most of these boys are destined to enter the ranks of unskilled laborers to compete on unequal terms with their normal fellows, and consequently to lose out in the competition. It would, without doubt, be a measure of economy for the school board to devote some building centrally located to

the vocational training of these high-grade boys and girls where their academic training would be continued, but where the emphasis would be placed on preparing them for some trade or for specific lines of work in the manufacturing plants of Grand Rapids. If all the high-grade boys and girls from the auxiliary classes and the backward boys from the ungraded classes were sent to such a school upon reaching the age of fourteen and were to remain there until sixteen, a large percentage of them would become self-supporting at once upon leaving school. But one step further is necessary, and that is, to appoint some person to act as a follow-up agent, to see that these boys and girls are properly placed upon leaving this school. New York has visiting teachers who devote all their time to visiting the homes of the children and in assisting in every possible way to improve the environment of the child. Surely Grand Rapids could use advantageously one such person to look after the auxiliary boys and girls who are in school as well as those who have left school.

But let us glance at the second question as to how to prevent these defectives from propagating their kind. There are two possible ways, sterilization and segregation. The former under existing conditions is out of the question, public sentiment is decidedly against it, and rightly so, it seems to the writer. The second method is to segregate these high-grade boys and girls in institutions. But where? Our state institution is full and has a long waiting list. The prospects that the State of Michigan will, in the near future, provide enough institutions to take care of its feeble-minded are exceedingly remote. Relief can only come through the city building such an institution. Such a plan has been advocated for several large cities, but as yet no action on a large scale has resulted.

At the present time it is costing Grand Rapids one hundred dollars per year for each child in the auxiliary school. That is more than half as much as it costs to support a defective child in the state institution for the entire year of twelve months. In the state institution he is not only fed and trained and instructed, but in addition he receives the best of medical attention and leads a much happier and more useful life than does the lower-grade defective in the auxiliary school, or the auxiliary class; he not only leads a happy and useful life in the institution, but what is more important yet, he is prevented from propagating his kind. If Grand Rapids were to secure near the city a large tract of land and erect on it cottages sufficient in number to provide for all its feeble-minded children it would be rendering a real and lasting service to its own community and to the state at large through the reduction of pauperism, crime and feeble-mindedness.

If the generous and public-spirited citizens who have done so much for the auxiliary classes and the open-air classes of the public schools would become interested in this larger and more important problem a solution would be possible.

(8) Recommendations.

In the judgment of the writer the good work that is now being done by the auxiliary classes of Grand Rapids may be improved by adopting the following recommendations.

1. That all children before being assigned to an auxiliary class be given a medical examination as well as the psychological examination.

2. That better class rooms be provided for the auxiliary classes in Widdicomb, Straight and Diamond Schools.

3. That all auxiliary class rooms, not already so equipped be provided with movable seats.

4. That more work in manual training and domestic science be provided for the auxiliary classes and that this work be given by special teachers of these subjects.

5. That the auxiliary school be used for the children that are most defective mentally.

6. That a building centrally located be used as a vocational school where the high-grade boys and girls, and backward boys and girls from the ungraded classes, may be sent upon reaching the age of fourteen.

7. That a field worker be employed whose business it will be to follow up the auxiliary boys and girls and assist them in every way possible, both before and after they have left school.

8. That the city look forward to the segregation of its feeble-minded in order that the chief cause that makes necessary the formation of auxiliary classes may be removed.

b. Ungraded Classes

The ungraded classes of the Grand Rapids public schools were first organized some years before the auxiliary classes were started. They have gradually increased in number until at the present time there are twenty classes in connection with fifteen schools. Five of these schools have two ungraded classes each. Where two ungraded classes are found in the same school building both may be used for pupils of about the same degree of retardation, or one may be for the primary pupils and the other for pupils from the grammar grades. The pupils that compose these ungraded classes may be drawn from two or three different schools or they may all come from the same school. The enrollment in the majority of these classes is about what it should be: between twenty and twenty-five. Experience has shown that

a teacher cannot handle advantageously more than twenty-five pupils as a maximum. The pupils enrolled in these classes range in age from seven to twenty-two. However, there are only three classes that have any pupils under nine years of age, and more than half the classes have no pupils under eleven years of age. It is a significant fact that five of these classes have pupils over sixteen years of age. It seems to indicate that the classes are liked by the pupils, otherwise they would not remain in school after they had reached the age of sixteen.

The pupils for these classes are selected by the principals of the schools in which the ungraded classes are organized. This means of course that in the majority of the cases the backward pupils of that school are cared for first before any are received from the neighboring schools that have no ungraded classes. And this is only natural as long as the principal has complete control of the class in her own building.

In the selection of pupils for these classes the practice is not uniform although, generally speaking, the policy is to put into these classes those who by repeated failure in the grades have shown conclusively that they cannot keep up with their normal fellows. Then again pupils; on account of illness or absence from school, may be put into these classes temporarily in order to make up the work they have missed. Sometimes these pupils do not sit in the ungraded room but merely go to the ungraded teacher to recite in the subject or subjects in which they are behind.

As a result of the different methods of selection there are in these ungraded classes children ranging in mentality from those of more than average ability, who are in the class for a short period of time, to those who are strictly feeble-minded. It is conceded by many of the teachers that they have one or more feeble-minded pupils in their classes. Very few of the children in these classes have had either a medical or psychological examination.

The equipment of the ungraded classrooms is, for the most part, like that of the regular grade rooms. However, there are some marked exceptions. Some of the rooms are equipped for handwork of different kinds, and one room that the writer visited had a sewing machine, and a cobbling outfit both functioning while pupils were attempting to study. Of course, the character of the equipment will depend on the mentality and interests of the pupils that are in the class, as well as on the aims of the teacher.

Most of the teachers of these classes have a twofold problem—that of coaching children of normal mentality or slightly

less than normal with the view of returning them in the course of a few months to the regular grades, and the problem of training and instructing pupils who are so backward mentally that they can never catch up with the normal child no matter how much assistance they may receive. In answer to the question, "What per cent of your class will you be able to return to the regular grades?" the majority of the teachers placed the percentages between twenty-five and fifty. The range was from ten to eighty-five per cent. It is perfectly evident that the teachers of the classes for ungraded children have in some respects a more difficult task than the teachers of the auxiliary classes. The latter teachers are not expected to bring any of their pupils up to the normal standard, while the success of the ungraded class teacher is largely measured by the percentage of her class she is able to return to the grades. Her work is supervised by the principal of the school who is not in a position to judge whether a given child is not returned to the grades because of lack of ability, or because the teacher has not pursued the right methods of instruction. Then too the teachers of these ungraded classes are handicapped in having had no special training for this kind of work. Only four of the twenty teachers of ungraded classes have had any special training, yet in the judgment of the writer they need such training quite as much as the auxiliary class teachers, and perhaps even more so under the existing methods of supervision that obtain in these classes.

In the first place, the method of selecting the pupils for the ungraded classes is not all that could be desired. As the writer pointed out, in discussing the superintendent's policy of not putting children in the special classes until they have lost two years or more, the child has become accustomed to failure before he is put into the special class and the normal children have suffered by his presence during this period when he was making extra demands on the grade teacher. But if the children were selected for the ungraded classes at the end of their first semester in the grades, this two-fold loss would be in large measure avoided. But these children before being assigned to an ungraded class should be given a medical and psychological examination. By this method those who stood most in need of help would receive it. Any child six or seven years of age who enters the first grade and fails in the term's work needs special consideration to determine if possible the cause of his failure. If he is handicapped by physical defects, or if he is subnormal in mentality, both the principal and the ungraded class teacher should know these facts. By such knowledge the teacher will

be enabled to do the most for the child. Each child should be tried out thoroughly in the ungraded class and if he is found to be mentally defective he should be put into an auxiliary class. As long as there are not enough ungraded classes to accommodate all pupils that may fall behind in their work, we should be careful to put into these classes those children that stand most in need of special assistance. We can never be sure that the wisest selection has been made under the present method of choosing children for these classes. Furthermore, under the present system of selection, the schools which have no ungraded classes, but are supposed to send their backward children to the ungraded classes in adjacent schools are not likely to get fair representation. But if pupils were assigned to these classes only after they had been given a psychological and medical examination, then only those would be selected who stood most in need of individual assistance. In other words, the selection of pupils for the ungraded classes should not rest with the principal alone, but the principal and the supervisor of special classes should make the selection. And the supervision of these classes should be under the control of the supervisor of special classes. The principal is not a specialist along this line and consequently should not be expected to supervise a work for which she has had no special training. Then too she has enough to do without being compelled to undertake this work.

The ungraded class should be a clearing house for children not getting along well with their work. There should be no stigma connected with being put into this class. Let pupils understand that in being assigned to this class they are being given an exceptional opportunity to make up the work in which they are behind, and when that work is made up they will be returned to their grades. In one school where this method has been adopted the class is so popular that it has a waiting list.

In a school building where there are two ungraded classes it is desirable to have one for the primary grades and the other for the grammar grades. A grammar-grade boy commonly resents being put into the same room with primary pupils even though he may belong there. Also in dividing them this way the burden of the teacher is lightened as she does not have so many grades to teach.

Ungraded classes are much needed in the Hall School and also in the Plainfield School. These two schools had during the first half of the present year a larger percentage of repeaters than any other two schools in the city. Both buildings are overcrowded, and some of the teachers have too many pupils to do the best work. In the Plainfield School the average number of pu-

pils per teacher is over forty, while the average per teacher for the elementary schools of the city is only about thirty. The principal of the Plainfield School claims that over twelve per cent of her pupils are retarded two years or more. And this is true in spite of the fact that she claims to have a good corps of teachers. Evidently the size of the classes in this school should be reduced and an ungraded class organized to provide for the backward pupils who are blocking the progress of the normal children.

While the writer appreciates the good work that is being done in these ungraded classes yet he believes that work would be improved if the following recommendations were adopted:

1. That in the future the majority of children put into ungraded classes be selected from the pupils who have failed in the first term's work of the first grade.

2. That the children for the ungraded classes be selected by the supervisor of special classes and the principal of the school to which the child belongs.

3. That all pupils in the present ungraded classes be given a medical and psychological examination, and those found to be mentally defective be placed in auxiliary classes.

4. That in the future all pupils before being assigned to an ungraded class be given both a physical and psychological examination.

5. That the supervision of the ungraded classes be under the direction of the supervisor of special classes.

6. That future teachers of ungraded classes be required to take special training as is now required of the auxiliary class teachers.

7. That the backward boys and girls of the ungraded classes who show some ability in manual work, upon reaching the age of fourteen be sent to the industrial or vocational school, the establishment of which has already been recommended.

2. Open Air Classes

At the present time Grand Rapids has three open air classes and one open air school. The three open air classes are held in connection with the Sigsbee, West Leonard and North Division Schools.

The Sigsbee open air class was organized during the school year of 1911-1912. This class is conducted in a portable building which has been set up near the regular school building. The class has an enrollment of twenty-six, ranging in age from seven to fifteen and representing grades one to seven. The children were selected by the teachers and superintendent and were required to have a medical examination before being as-

signed to this class. For the most part the parents pay for the extra food and clothing as they are glad to have their children in this class. All the children who want it are given a cup of cocoa or milk in the morning.

The West Leonard open air class is also conducted in a portable building which has been set up in the school yard near the regular school building. This class has an enrollment of nineteen, representing grades three to seven. These children are provided lunch twice a day. The lunch, which is prepared by the open air teacher and the principal of the West Leonard school, is served at nine o'clock in the morning and at two forty-five in the afternoon. The children pay thirty-five cents every two weeks to defray the expense of food.

The North Division open air class, or more properly speaking, open window class, is held in a large room on the third floor of the North Division school building. The classroom has large windows on three side so there is an abundance of fresh air. This class has an attendance of eighteen pupils. In age these children range from seven to twelve, and belong to grades one to three inclusive. Although this class was started in February, 1916, when the weather was very cold, only one boy asked to go back to the regular school. The children who are in this class come from three or four adjacent schools. Each child that wants it is given a half pint of milk in the morning and another half pint in the afternoon.

Before the Walker School was converted into an open window school the consent of the parents of the pupils was obtained. Extra clothing was provided and the windows were then kept open during the entire year. The children were furnished milk every day. The superintendent in his report for 1913-1914 says: "If the Walker School had not been made into an open air building I doubt if school could have been kept there because the building is so old and dilapidated that it is impossible to keep the building warm in severe weather. As it is, with the children supplied with extra clothing, the windows can be opened and the children are comfortable and happy. Never in the history of the school has there been so little sickness as this last year, and the work of the children has been improved by the open air. I am not exaggerating when I say that they do not look like the same set of children, they have improved in health, in work, in looks, in attendance—in every possible way."

The food and extra clothing for the three open air classes and for the open window school have been furnished in large part by the Fortnightly Club, an organization composed of generous

and public-spirited women who have rendered invaluable assistance in developing the auxiliary and open air classes.

Without question the open air classes as well as the open window school have proved to be a decided success. But this is the experience of all cities that have given the open air class a fair trial. It is safe to say that the value of these classes has been established. The question is as to the character of their future development.

Grand Rapids has between one hundred and one hundred and ten pupils enrolled in the three open air classes and open window school. The estimate most commonly made is that from two to five per cent of the school children stand in need of the open air treatment. According to this estimate there are in the Grand Rapids elementary schools from three to seven hundred fifty children who would profit greatly from the open air treatment. How may they receive this treatment at a minimum cost? It is not easy at the present time to give a satisfactory answer to this question because of the diversity of practice. St. Louis in 1915 completed an open air school the equipment of which alone cost three thousand dollars. This school is supplied with baths, lunch rooms, and dental clinic. It opened with a corps of six teachers and an enrollment of one hundred twenty-one pupils. On the other hand, Supt. Dyer, of Boston, in his report for the school year 1914-1915 referring to the tubercular and anemic children says, "These are in fifteen open-air rooms, which are, as a rule, equipped for the purpose with wraps, reclining chairs, and luncheon facilities. There seems to be no tendency to increase the number of these rooms. So much attention has been given to ventilation of our school rooms by the open-window method that teachers feel most of their rooms are, to all intents, open air rooms, and the principals who make comparisons between the children in the open air rooms and those under ordinary conditions are coming to the conclusion after many years of trial that except for markedly defective children the so-called open air room is unnecessary. Our medical inspector is giving this matter serious consideration this year but has not as yet reached a conclusion as to the advisability of increasing or diminishing the number."

In the annual report for the year 1913-1914 Supt. Dyer in discussing the same problem says: "The open air classes number fifteen and these seem to be sufficient to meet the need of special treatment of children who are undernourished and anemic. In fact, most of our school rooms are to a considerable extent open air rooms. The provision that windows shall be open at all times when the weather at all permits and that the rooms be

flushed periodically through the day is very carefully followed by almost all our teachers. The temperature is carefully watched and except in summer is rarely above 68 degrees. Whether as a result of this or not, the number of children needing distinct and separate open air treatment seems to be diminishing rather than increasing. In most of the open air classes a luncheon is provided at the smallest expense possible to the children. This provision should be made for all the classes in order that these children should have the proper kind of nourishment at the noon period."

In this same report Dr. Harrington, head of the department of school hygiene, says: "Besides the fifteen open-air classes for the especially selected debilitated children, the school committee has made an effort to have every classroom an open-air room. Legislation bearing upon the temperature and regulation of windows has been carefully observed. Among 1,065 different classrooms visited during February, March, and April, 1004 had open windows. Nine hundred forty-seven had a temperature between 60 and 70 degrees Fahrenheit. Six hundred eleven had a temperature of 64 to 68 degrees, inclusive."

The trend of development in New York City is also in the direction of the open window classes. Such classes were rapidly organized during February and March of 1914 so that before the conclusion of the term there were ninety classes in Manhattan. In discussing these classes in the superintendent's report for 1913-1914 Dr. Woodruff, medical inspector of open air classes of New York City schools, says: "These classes were conducted like ordinary classes, except that the classrooms were cut out of the ventilating system, and ventilation was carried out by means of open windows. This gave, during the winter, a lower temperature, greater humidity, and greater air movement, as well as that intangible quantity, 'fresh air'. The classroom temperature was kept between 50 and 60 degrees Fahrenheit, when the outside temperature was not higher, and 50 degrees F was considered the minimum temperature. Heat was permitted to overcome unduly low temperatures and 'rawness' (excessive humidity.) Children were allowed to wear their own wraps and hats when they desired, but no equipment was provided. In some classes feeding was given at the desire of teachers or principals. This was almost entirely self-supporting. It consisted either of food, such as sandwiches, brought by children, with or without milk, or else milk and crackers, procured by the teacher and for which the children paid. The average cost when milk was procured by the teacher was about ten cents per capita per week."

The following are some of the suggestions made by Dr.

Woodruff based on experience with open window classes in New York City:

1. "That room is preferable for this type of a class which has windows on two sides so as to insure open windows on at least one side, if on account of high winds or a driving storm they have to be closed on the other. Rooms with sliding doors such as those which form parts of assembly rooms are not satisfactory. The doors do not fit closely together and this, together with the ventilator above, creates too much of a draft.

2. "A room with south or east exposure gives best results, as this room is the warmest in winter time. Rooms with a northern exposure, particularly those room in which it is difficult to keep the temperature at a comfortable point in cold weather with the windows closed are bound to give dissatisfaction.

3. "A minimum of 50 degrees F. seems to yield the best results, as under ordinary conditions children do not feel cold at this temperature. On some cold raw days without sun, the temperature will need to be higher, probably over 55 degrees. It is well to assume that shivering on the part of any child indicates that the child is not warm enough.

4. "If the children come to school with their clothing soaking wet, it is desirable that the room be conducted as a closed classroom until their clothing is dry, unless the temperature with the windows open is about 65 degrees or higher.

5. "The heat required to maintain the temperature at approximately 50 to 55 degrees, should be obtained preferably by a little heat from each radiator, rather than by all from one radiator, so as to prevent any child sitting near a radiator from being overheated. This is practicable, as in most classrooms the radiators have valves which can be controlled by the teachers. All children should be urged to wear sweaters if they can obtain them. They should be allowed to put on wraps or overcoats if they feel the need of them. Children with catarrh or running ears or whose medical card shows adenoids should be placed on that side of the room away from the open window. Those susceptible to catarrh or those near windows should be encouraged to wear caps, regardless of appearance.

6. "It is advisable that teachers dress appropriately. A thin wash waist, which is comfortable in a hot steam-heated apartment, is not sufficient for such a room, and unless teachers wear flannel waists or sweaters they will want to keep the temperature too warm for the more warmly clad children. There is a tendency, I think, for most of us to forget that, except in cases of extreme poverty, the average public school children who come

from homes where there is no heating plant are accustomed to dress very much more warmly than those of us who live in steam-heated apartments, where the temperature nearly always tends to be too high."

The experience of Boston and New York seems to indicate that if our public school buildings were properly heated and ventilated the need for the strictly open air class would not increase but decrease. The regular classroom is in part creating the conditions that the open air class is trying to relieve. Apparently the most can be accomplished by devoting a great deal more attention to the proper ventilation and heating of the regular classrooms, and using the open air room proper for children that are tubercular or come from tubercular families.

The writer would make the following recommendations:

1. That more attention be given to converting the regular classrooms into open window rooms in accordance with the suggestions contained in the quotations from the Boston and New York reports.

2. That enough open air rooms thoroughly equipped be furnished to provide for those children who especially stand in need of fresh air, food and rest.

3. That the children for these open air classes be selected by physicians, not by teachers. Only in this way can we be sure that the children who stand most in need of this treatment will get it.

4. That future school buildings be so constructed that they can to advantage be used as open window schools.

3. Truant School

The truant school under its present principal has a history of seventeen years. The principal points with pride to the fact that so many of the former pupils of this school are now successful men. He insists that not one of the pupils who have attended this school during the seventeen years of his administration has made a criminal record since leaving school. If this is the case it is a record of which to be proud, especially in view of the fact that this is a school for truant and incorrigible boys.

Boys ten years of age or above are admitted to this school upon the recommendation of the principal of any elementary school and with the approval of the superintendent of schools. Pupils also are admitted from the parochial and private schools upon the recommendation of the truant officer. When once admitted they remain in the truant school until the principal thinks it wise to return them to the regular schools, or until they have reached the age of sixteen. The interesting fact is that very

few of these boys want to return to the regular schools. The writer asked the principal and his assistant to leave the room and he had a talk with the boys in regard to the school. Only three out of the forty-five boys enrolled said they would rather be in the regular schools, and the reasons assigned were that they did not have enough manual training work, no recesses, and little opportunity to use the playground. From the standpoint of the boys the school is eminently satisfactory. One reason for the general satisfaction is the way the school is conducted. It begins at the usual hour, nine o'clock, and continues until eleven when most of the pupils are excused to sell the morning papers, which in Grand Rapids do not come out before eleven o'clock. School begins in the after-noon at one o'clock and most of the boys are again excused at three o'clock to sell the afternoon papers. Thirty-five out of the forty-five boys enrolled sell papers. But the selling of papers is done under strict supervision. Each boy has his corner and is supposed to be there at certain hours of the day. The principal makes two tours of inspection each day, at eleven o'clock and again at three o'clock to see that each boy is at his place of business. The selling of papers is considered a part of the education of these boys. One reason the principal encourages, and in some cases insists on the boys selling papers, is that many of them come from homes where the conditions are such that they do not get enough food to eat. By selling papers they are able to earn from one to eight dollars a week. The principal also secures positions for many of the boys during the summer vacation as he believes, and rightly, that work is an important factor in the education of these boys.

The truant school is housed in three rooms in the Junior High School building. One of these rooms is fitted up for manual training work; the other two rooms are used as classrooms and one of these is also used as an office.

The boys enrolled in the school are from ten to sixteen years of age, and all are in the grammar grades. In order to determine how these boys compare with normal children the writer gave them three tests taken from Pyle's "Examination of school children". The tests used were one of the "logical memory tests" in which the selection entitled the "Marble Statue" was used, and two tests of "rote memory" in which two lists of concrete and abstract words were used.

In memory for concrete words sixty-seven per cent fell below the standard of attainment for normal children of like age; in memory for abstract words, and in the logical memory test, eighty-seven per cent failed to reach the normal standard. While

too much weight cannot be given to tests of this character yet the results obtained would seem to indicate that on the average these boys are in mentality somewhat below children of like age in the public schools. The writer gave a psychological examination to one of the boys who was said to be among the dumbest in the group and found him to test two years below age. Evidently the teachers are here dealing with a group of boys some of whom failed to make good in the regular school, not merely because of lack of interest and consequent irregular attendance, but also because of poor ability.

The way the work of instruction is divided the principal teaches the seventh and eighth grades and the assistant teacher teaches the rest. As there are fifteen boys in the seventh and eighth grades that leaves thirty pupils for the assistant teacher to instruct. The principal also has charge of the manual training work.

The writer is decidedly of the opinion that the present training and instruction that these boys are receiving in the academic subjects and manual training is unsatisfactory. In the first place, the school day is too short. The majority of the boys, the thirty-five who sell papers, are in school only four hours per day. In the second place, the principal of the school is devoting only part of his time to teaching. The boys of the school are getting very little manual training work, simply because the principal finds it necessary to spend so much of his time in looking up boys who are not in school. He frequently drops everything and starts out at once to get some truant boy whom he has succeeded in locating. In the third place, the assistant teacher has too much work to do. She cannot be expected to handle to best advantage a group of thirty or more, and commonly more, ungraded boys. She is an excellent teacher and is doing good work and is liked very much by her pupils, but she is being overworked, for she is trying to do in a short school day with a group of ungraded truant boys what most teachers are expected to do in a longer school day with a group no larger of well-behaved graded pupils.

One solution of the problem would be for the principal to cease acting as truant officer and leave that work to the regular truant officer and devote all his time to the work of teaching. If the principal were to do that, and if the boys were to give up the selling of papers, then the school day could be lengthened and the present teachers would have the time to do justice to the manual training and academic work. But such a solution of this problem would be decidedly unwise. The function of a school of this kind is not merely to train boys in the conventional

school subjects, but also, and above all, to develop character, to make honest men out of boys who got a wrong start. This function of a truant school should never be lost sight of, and the principal has kept this function clearly in view.

The careers of the boys that have left this school during the seventeen years of his administration are conclusive proof of that fact. To have the boys give up selling papers would be a decided mistake. This work is not only enabling most of these boys to earn a little money that is much needed, but it is at the same time giving them a training in conducting business in an honorable way. To have the principal give up his work of acting as truant officer would be a mistake. One reason the boys are sent to this school is that they have been irregular in attendance. The regular truant officer was not able to keep them in school when they were enrolled in the regular schools. We have no reason to think he would be more successful with truants from the truant school. In Table LXII are given figures showing the enrollment and attendance in the truant school for a period of eight years as compared with the attendance in all the public schools of Grand Rapids.

TABLE LXII

Attendance at the truant school compared with attendance at all public schools of Grand Rapids.

School Year	TRUANT SCHOOL		
	Number in Attendance	Percentage of Attendance	Percentage of Attendance for All the Schools
1907-1908	74	96.0	95.8
1908-1909	64	97.0	96.8
1909-1910	56	98.1	95.2
1910-1911	65	97.6	95.6
1911-1912	58	98.5	95.8
1912-1913	71	98.5	96.45
1913-1914	55	98.6	96.07
1914-1915	58	98.8	96.21

In the first column is given the school year; in the second, the total number of different pupils enrolled in the truant school; in the third, the percentage of attendance for the truant school based on the average number belonging; and in the last column, the percentage of attendance for all the public school of Grand Rapids based on the average number belonging.

This table shows that throughout this entire period the attendance in the truant school has exceeded the average attendance for all the public schools, and that during the last six years it has exceeded it by two per cent or more.

These figures show conclusively that the principal of the truant school has been eminently successful in preventing truancy. But the principal has succeeded in keeping these boys

in school not only by catching the truant before he has had a chance to profit from his truancy, but also by making the school so attractive to the boys that they do not have much desire to play truant.

One striking fact is that so few of the boys that are sent from Grand Rapids to the Industrial School at Lansing have ever been in the truant school. It seems to indicate that most, or at least a majority, of the worst cases never are sent to the truant school. Apparently the method of selecting boys for this school is not all that could be desired. If boys are sent to the truant school simply because they have been irregular in attendance, because they did not like school, or if they are sent to the truant school simply because they have an abundance of energy that causes them to get into mischief then, without question, the truant school is not getting the type of child that stands most in need of the kind of instruction and training that a truant school is supposed to give.

The writer would make the following recommendations:

1. That pupils be committed to the truant school upon the joint recommendation of the principal of the elementary school from which the child comes, and the principal of the truant school, with the approval of the superintendent. The principal of the truant school, because of his knowledge of boys in general, and because of his knowledge of what many of the boys are doing and the type of place they are frequenting after school hours, is in a position to render valuable assistance in the selection of boys for the truant school.

2. That a man assistant be appointed to assist in the work of teaching at the truant school, in order that the present assistant may be relieved of some of her work, and in order that the principal of the truant school may have more time to investigate the cases that are proposed for admission to the school, to direct and supervise the activities of the boys outside of school hours, and to secure positions for them during vacations and upon leaving school. The writer is convinced that the principal can render a much greater service by using his time in this way than by devoting it all to teaching in the school, for the work suggested above can be done successfully only by one who understands boys thoroughly, and who is in sympathy with them.

3. That the truant school open at eight o'clock in the morning and close at eleven, and open in the afternoon at twelve forty-five and close at three o'clock. By adopting these changes the work of selling papers would not be interfered with, and the

school day would then be of the same length as that of the regular schools.

4. That the boys be given more manual training work, better opportunities to use the playground, and that bathing facilities be provided.

5. That all pupils upon admission to this school be given a careful psychological and medical examination.

6. That each year the principal of the truant school submit to the superintendent of schools a detailed report of the work of the truant school.

CHAPTER XIII

BUILDINGS AND EQUIPMENT

John F. Bobbitt

In any present consideration of school buildings and equipment in Grand Rapids it is necessary to divide the buildings into two classes: (1) those that represent the building policies of former boards of education, and which are of types no longer constructed but most of which must be used for many years to come; (2) the buildings recently constructed, which represent the present building policy of the board.

The New Buildings

Judging from the results secured, the city is fortunate in having a school architect who has thoroughly familiarized himself with all of the best features of modern school-building construction. Buildings like the Franklin and the Sheldon can be commended in almost all of their features. Questionable arrangements are few and slight. Among the striking features of excellence are the following:

1. The school plant supplies the material facilities for a very wide range of educational and community activities: classrooms, assembly rooms, gymnasium, manual training room, domestic science room, branch public library, cloak-rooms, nurses' room, shower baths, moving picture and stereopticon facilities, social center room, kindergarten room, toilet rooms, teachers' rest room, principal's office, rooms for ungraded pupils, teachers' lunch room, etc.

2. The building is of fire-proof construction throughout.

3. The orientation of all classrooms is either east or west, and in no cases north or south.

4. The lighting in all classrooms is unilateral.

5. The ground floor is sunk but little below the general

grade level, thus permitting large windows and adequate lighting of the rooms on the ground floor.

6. The ratio of window space to floor area is sufficiently large in all classrooms.

7. The tops of the windows are square and reach as nearly to the ceiling as practicable.

8. In most cases the mullions between the windows are as narrow as construction will permit, thus eliminating bands of shadow across the classrooms.

9. Translucent shades are provided for the windows.

10. A carefully chosen and pleasing tinting scheme has been employed.

11. The lighting is always from the left side of the pupils.

12. The rooms are thoroughly ventilated with a modern plenum system, which takes the air from a good height above the ground.

13. The temperature of the air is automatically controlled.

14. After passing the coils, the warm air is humidified by means of a copper evaporating-pan humidifier. The per cent of humidification is automatically controlled by means of a humidostat in one of the classrooms.

15. In addition to the indirect heating of the classrooms in connection with the ventilation, there is also a vacuum system of direct steam heating with radiators of the wall type located under the windows. This direct radiation is controlled by thermostats which operate the diaphragm valves.

16. All classrooms are of good standard size with no space wasted by making them too large, as in the majority of the older buildings.

17. Each classroom is supplied with a cloak-room, and a closet for teachers' supplies. Cloak-rooms are commodious, ventilated, and lighted.

18. The corridors are adjusted in width to the needs of the buildings, space being ample without waste.

19. Exits are sufficiently numerous, sufficiently wide, doors opening outward and provided with automatic panic bars.

20. The boiler-room, although within the building, is separated from all other portions of the building by means of fire-proof construction.

21. The floors of classrooms are invariably of close-grained hardwood, usually or always maple, and never of pine or other loose-grained or soft wood. The floors of corridors are of tinted concrete composition, and are both pleasing and serviceable.

22. Adjustable desks are found in all the classrooms.

23. The blackboards are of slate. They are sufficient in

amount, without excess, and are placed in the different rooms at levels corresponding to the needs of the pupils of different grades.

24. The ceilings of the rooms are of standard height.

25. Drinking facilities of the most modern type are installed upon each floor.

26. Toilet accommodations are placed on each of the several floors for both boys and girls. All plumbing is of approved modern, sanitary type. There is a thorough system of ventilation completely separate from that of the rest of the building. The flooring is of good composition, and the rooms are adequately lighted.

27. Special entrances are provided for the community center room and the branch library room, which permit their use without opening up any other portion of the building.

28. The building is provided with a vacuum cleaning system.

29. The buildings are of simple, pleasing architectural design. They combine economy of cost with good architectural proportion and general appearance.

30. The cost of the buildings as compared with similar constructions in other cities is moderate. It is somewhat lower than in Detroit or Cleveland; considerably lower than in Newark and St. Louis; and very much lower than in Boston. It is not sufficiently low, however, to create suspicion as to quality of materials or character of workmanship.

There are a few things, however, in the new buildings that should be considered in planning the construction of future buildings. While most of the things mentioned here are of minor significance, some of them are of sufficient importance to justify careful scrutiny:

(1) In certain of the rooms in the newer buildings—the Lexington, the Franklin and the Sheldon—and in certain of the newer additions, as for example that at the Alexander School, the front wall of the room is so completely given to doors as to leave inadequate blackboard space at the front of the room for the teacher, and to make it difficult to mount pictures at that end of the room where they can be most effective. Much can be said in favor of a closet for the teachers' supplies at or near the front of the room, where they are easily accessible. But when the result of placing the cloak-room at the front of the room requires two additional doors at the front, making three in all as in the Franklin, or four at the front as in the Lexington and in the Alexander addition, then it seems clearly desirable that the cloak-room should be placed at the back of the room. If placed at the front it should certainly be so arranged as not to break the front wall so completely as is now the case. It seems that a

desire for architectural symmetry has outweighed considerations of educational utility and serviceability. In all cases it is the work that goes on within a building that should determine the arrangements within the building. Where architectural symmetry and educational needs cannot be reconciled, it is the needs of the educational work that ought to be dominant. The necessary degree of architectural symmetry and good appearance can always be obtained.

It perhaps ought also to be said that building plans should never be adopted until they have been carefully gone over by those who are to use the buildings after its completion. Requests, suggestions, and judgments of teachers and principals in such case do not always show as great familiarity with modern building construction as is desirable. Nevertheless, knowing what they want to do within the building their advice is generally worth listening to as to the kind of building arrangements that will best serve their purposes.

(2) The classroom bank of windows should not be carried so far forward. The reasons for carrying the dead wall space back eight feet at least from the front is that the presence of windows too far forward means an undue amount of frontal glare upon the eyes of pupils in the rows of seats nearest the windows. This extra glare reveals itself also in undesirable ways upon the varnished desk tops and the front blackboard. If the extra window space is actually needed for illumination on cloudy days, and is justifiable for that reason, it perhaps should be provided with special dark blinds that are kept drawn on days when such extra illumination is not required. This mode of treatment is recommended for the front window in each of the classrooms of the buildings recently constructed.

(3) In buildings like the Franklin, the corridors, especially those of the first floor, are not well enough lighted from the outside. The placing of toilet rooms for both boys and girls on all floors is very commendable, but they should not have been placed so as to close both ends of the corridors on each floor. This space should be given to windows, and the toilet rooms placed at the sides of the corridors.

(4) Toilet fixtures for the little people on the first floor, the standing wash basins, etc., should be of such a size and height as best to accommodate the diminutive stature of the primary children. If not uniformly small, they should be of different sizes. Wash basins should be much more numerous than at present, provided with liquid soap, and with towels always on the holder.

(5) Both in the purchase of the sites and in the plans of the buildings, provisions should be made for the construction of

additions in the future, as the district about a building becomes more densely populated.

The Older Buildings and Their Equipment.

Some of the older buildings are of antiquated and undesirable types. The board already has been working for some time upon the policy of replacing them with modern construction. The continuance of this wise policy will in time provide suitable buildings for every district in the city. The change, however, must necessarily be gradual. Except in a few instances where the buildings are highly unsuitable, the older buildings must be used yet for many years.

The problem of the board in connection with these older buildings is to make them as serviceable as possible during the time that they must still be used. It must be remembered that the children going to school within these more ancient buildings are as deserving of good accommodations as the children of the districts possessing modern accommodations. Since it is impossible to afford entire equality of accommodations, it is desirable that especial care be given in the old buildings to those improvements that require no fundamental reconstruction, and which can therefore be economically made. It is possible to take care of the lighting, the ventilation, the furnishing, the decorations, the fire protection, the cleanliness, the heating, the blackboards, etc., so as to bring about reasonable equality of opportunity in these various things throughout the city. In most respects it must be said, too, that commendable attention has been given to the various needs of the older buildings. In all of them one finds recent adjustments which have been made for the purpose of modernizing the structures and equipment. New toilet facilities have been installed. Ventilation arrangements have been made. New windows have been cut in rooms formerly too dark. Unused basement rooms have been improvised for playrooms, shops, kitchens, etc. Older types of heating have given way to modern types. School yards have been enlarged through the purchase of adjacent lots. Modern playground facilities have been provided, etc., etc. The writer was informed that when the present board took charge of affairs, the buildings in general were in a deplorable condition. The city was years behind in its building program. In every building one finds that the present board has been trying to overcome the accumulated results of former neglect.

The recommendations made in the sections that follow which look for further improvements in the facilities provided in the older buildings fully recognize the fact that the present

board has for some time been working upon the problem of improving the older buildings as fully as the funds of the district will permit. Since their policies are already so evident, our purpose here is not mainly to suggest to them what they ought to do so much as it is to reinforce policies that are already being effectively carried out.

In pointing to shortcomings observed in the older buildings, it is not our purpose to point out all kinds of shortcomings. Many of these cannot be overcome without an outlay that is unwarrantably large. When the outlay required goes beyond a certain point the district will have to wait until the building can be replaced by a modern structure, or until an addition to the present structure can be built. Our purpose is to point out only shortcomings that can be remedied without fundamental alterations of the present structures. Where fundamental alterations are required, the only thing to do is to recommend an addition or a new building.

Provision for a Variety of Activities.

When the oldest buildings were constructed education concerned itself with little besides learning things out of books. The only activities for which a building needed to be equipped were study and recitation activities. It was then known that many other things were necessary for the full development of children, but the schools had undertaken no responsibility concerning these other things. Moreover, it was felt that since school buildings were for children only, they were not designed to take care of any type of adult activity.

More recently we have conceived, as indicated by such good practice as that shown in the new buildings in Grand Rapids, that we must take care not only of the activities of the children but of the adults of the district; not only of learning things from books, which is necessary, but also the training that comes from play, from athletics, from music, from social activities, library reading, shop activities, gardening, etc.

When the principals in the old buildings were asked what they needed in order more adequately to take care of the activities of children and adults in their community, demands everywhere were of similar tenor: "We need an assembly room." "We ought to have a branch library room." "We need a gymnasium, shower bath, lockers, etc." "We should like to have a room for our backward children." "We need a manual training room." "We need a swimming pool." "We need a larger playground and a better equipped playground." "We need rest-rooms and lunch-rooms for the teachers." "We need a sewing-

room outside of the kitchen." "We need indoor playrooms for the children." "We need a school garden."

The school board and the professional people are to be commended for making vigorous efforts everywhere throughout the system to take advantage in the greatest possible degree of the opportunities afforded in the school buildings of taking care of these various activities. In most cases about all has now been done that the older buildings will permit. In most cases nothing remains to be done but to build additions or to build a modern structure in the place of the outgrown one.

Assembly Rooms, Branch Library Rooms, Gymnasium.

When the older buildings make no provision for such large rooms—this neglect is universal in the old buildings—there can be no adequate remedy within the building itself as it stands. In such cases it is possible for the board to consider an addition to the building which represents the first unit of construction of a new building which is designed in time to replace the old one. Such a plan would provide facilities at present for the quite old buildings, and yet retain the buildings for service as long as conditions may make this necessary. It means that in the replacement of the building a portion of it might well be built soon, and the remaining portion of it several or many years hence. The plan naturally requires long foresight and stable policy.

As the board provides new construction for the city, one thing to keep in mind—and the board appears to be keeping it in mind—is a general distribution of assembly rooms, gymnasiums, etc., over the city so that where a district has no such accommodations for itself the accommodations can be found in an adjoining district at no great distance. It is possible to make one assembly room, one gymnasium, etc., for the immediate present serve the needs of two or even three adjoining districts. Naturally, this cannot be so satisfactory to the district that has no accommodations of the sort of its own; yet in so far as the need is felt by the district for such accommodations, the plan may be made fairly serviceable. For healthy children and adults to walk the extra distance can do them no harm. The chief obstacle is a mental, not a physical one. In the same way that it is possible to get on with manual training and domestic science rooms in only certain of the buildings, so it may well be possible in the immediate future with these other facilities equitably distributed throughout the city to get along with those for the next few years in similar fashion. Any such plan should be looked upon as only temporary, however; and to continue only so long as conditions make it necessary.

A special word needs to be said concerning the gymnasium accommodations in the Junior High School. The school is so large and the need of physical training opportunity throughout the entire year so great that facilities for all should, if possible, be provided at the school itself. At present within the buildings there is one gymnasium room large enough for the girls or for the boys, but not for both. The building is congested because of the presence there of the Truant school and of many of the administrative offices. It would seem that one or the other of these should give way to the needs of the Junior High School. The proposed use of the attic for a boys' gymnasium seems impracticable owing to the nature of the construction. A gymnasium on the fourth floor in such a building would interfere seriously with the class work of the floor beneath. If the congested condition makes it necessary for the attic to be used at the present time, something besides the physical training should be placed there. It is clear that the Junior High School building needs an addition to provide for gymnasium facilities, even if an additional room equal to the present one could be improvised. There are at present no adequate dressing rooms, no shower baths, no lockers, no swimming pools, etc. There is a fair-sized playground, and during good weather it is fully used for physical training purposes. During the milder portions of the year, it is better than an indoor gymnasium. But Michigan winters are long, and there are several months in the year when the outdoor grounds can be little used.

Cloak-Rooms.

A number of buildings have no cloak-rooms. Hats, wraps, etc., are hung upon hooks along the walls of the corridors. It is an unsightly and in some degree insanitary arrangement. In some cases it possibly cannot be easily remedied; but in some case certainly a remedy can be found. This probably should be done in the case of certain of the more substantial buildings of medium age that will be used for decades to come. It is possible to provide simple lockers, wall wardrobes with doors, or roll-top front. Because of the fact that the classrooms in almost all of these buildings are larger than what is now considered a standard size, such as exhibited in the Franklin, wardrobes can be placed at the back of classrooms in most instances. In other cases they can be placed at the side and back. It is not always easy to provide ventilating arrangements for such improvised wardrobes; but in many cases this can be done.

In many cases it is possible to run a partition so as to cut off a strip across the side or back of the large classrooms, and

thus provide cloak-rooms and storage closets. Where practicable this is better than placing the cabinet wardrobes at the back or side of the room. Where the corridors are unnecessarily wide, it is sometimes possible to utilize a part of the corridor space for this purpose. Whether in the corridor or in the classroom, it is not necessary in such improvised cloak-rooms for the wall to extend to the ceiling. Since it is not usually possible in these cases to secure the desirable separate ventilation for such cloak-room arrangements, a wall six feet or so in height and finished on top to serve as a pedestal for decorations of various kinds may well be sufficient. Such screen walls were recently observed in one of the best and newest elementary buildings in Cleveland.

So far as possible, classrooms and corridors from an aesthetic point of view should present simplicity of lines, colors and decorative effects. Wardrobes or cloak-room arrangements when improvised in this manner require careful judgment to prevent an unduly cluttered and confused appearance. While utility in such arrangements is the principal thing, it must still be remembered that from an educational point of view, good appearance is one type of utility.

Economical Use of Large Classrooms.

It is generally agreed that ordinary classrooms in elementary schools need not be so large as those to be found in almost all of the buildings of Grand Rapids, except those recently constructed. If the opportunity afforded by large classrooms to make classes very large is not taken advantage of and abused, probably the objections to the larger classrooms are not so serious as sometimes urged. If seats are rightly placed in reference to the window and to the blackboards, and if too large a class is not placed in the room, much indeed can be said in favor of the commodious spacious classroom. On the other hand, it is somewhat more expensive to maintain and operate in matters of fuel, janitor service, repairs, etc.:

The suggestion that we would make is that the excess space in the large classrooms be employed for providing variety of educational activity. In a number of cases for the grades where sewing is taught, it would be well to bring the sewing-machines out of poorly lighted basement kitchens and to place the machines and necessary tables in the excess space in the large classrooms. The simple laboratory provision necessary for elementary science could easily be provided for within such excess space.

Heating and Ventilation.

The mode of heating that has been made universal in all of the regular buildings of the city is indirect heating of the air furnished the classrooms by passing it through steam coils in the basement, together with direct heating by means of radiators usually of the wall type within the classrooms. The ventilation is most frequently of the gravity type. This is not and in the nature of the case cannot be satisfactory. When the difference in the temperature of the outside air and the inside air is not great, in autumn and in spring, the circulation of the air is very sluggish. Rooms were visited in which the ventilation was very unsatisfactory because of this reason. The system seemed to be working as well as it could work under the circumstances. Under such conditions it is possible to supplement the ventilation of the gravity system by means of the windows. In doing so, however, a good deal of administrative care is necessary because if the windows are opened miscellaneously in the rooms of the building, the working of the gravity system is entirely deranged, especially if there is any considerable wind blowing. The supplementary use of windows requires that they be opened and closed simultaneously in all of the rooms of the building.

Forced ventilation by means of a fan should be installed in every building as rapidly as conditions permit. In one of the buildings, for example, the old gravity boiler is to be taken out during the coming summer and a new one installed. It is not, however, proposed to install a fan at the same time. We recommend that as such renewals are made that fans be installed, unless the building is to be replaced by a new structure within a relatively short time.

One finds evidence throughout the system that the board of education is doing what it can by way of remedying the ventilation deficiencies. Serious neglect of the building situation many years ago appears to have presented to the board the double problem of providing for current necessities as well as making up for past deficiencies. In a few things like ventilation, which is so closely related to the health of the entire younger generation, it would appear that the city should be fairly generous in providing the funds necessary for remedying clearly discernible deficiencies left from past management. Certain types of deficiency may be deferred; but those intimately related to the health of the young people should receive immediate attention. The board is short of funds for doing the work. A little present generosity on the part of the city in supplying needed funds cannot but represent prudence and economy in the end.

Especial attention needs to be called to the ventilation in

two or three domestic science rooms that were visited. These rooms were in the basements of the buildings with no ventilation except windows, which were small. Because of the fact that the windows are small the cooking arrangements need to be placed near the windows. Then when the windows are opened for purposes of ventilation the gas burners are blown out and the cooking interfered with. The practical result is that the windows are kept closed; from twenty to twenty-five open gas burners are burning and using up the oxygen of the air. The room is also lighted at the Hall School by means of gas lights which burn up a further supply of the oxygen. The result is such a depletion of the oxygen of the room that at times the lights burn noticeably dim, and the air is of a sufficiently undesirable character for breathing purposes. Such domestic science rooms as those at the Diamond School and the Hall School are imperatively in need of an adequate ventilation system.

An attempt seems to have been made in all cases to provide ventilation for the toilet rooms. It is generally of the gravity type, and often not very serviceable. In one building odors from the toilet rooms were clearly distinguishable in a second-story classroom, and in more than one case it was possible while visiting classrooms on the first floor to determine under which end of the corridor the toilet rooms were placed simply from atmospheric evidence. In all cases examined the janitors seemed to be doing all that the building arrangements would admit of. In no case met with was the deficiency really very serious at the time. The arrangements, however, are such that in certain buildings there must be at times serious annoyance due to imperfect ventilation. Doubtless the board and the business management is ready to remedy conditions as soon as the community is willing to provide them with the means for doing so. The sanitary arrangements of the toilet rooms in the matter of ventilation should be made as perfect in all buildings as they now are in the new buildings.

In the old buildings in every case examined the fresh air intake is on a level with the street, the alley, or the adjacent playground. In many cases on windy days a large amount of dust is unnecessarily warmed and sent to all of the classrooms of the buildings. In nearly all cases, the cold air chamber was used as a storage room. In one of them we found a pile of sand, a quantity of kindling made up of wood, bark, and the accumulated trash of several months, old boxes and barrels, a large quantity of dry modelling clay, with everything covered with a heavy coating of dust. In only one case was a cold air chamber visited

that was not used in some measure for storage purposes. In this one case the walls and ceiling, and even the floor were newly whitewashed. This represents a condition that should be general instead of highly exceptional; but even here the work had only recently been done, and the air intake was from a sandy, dusty, playground. Even if not used as a storage chamber, it must soon become a dust chamber through which the air must pass to the lungs of the children in the classroom. The cold air intake should, wherever possible, be elevated ten or fifteen feet above the surface of the earth, even in the case of the old buildings.

The Lighting of the Buildings.

In occasional instances only are rooms supplied with too small a quantity of effective lighting surface. Often it is badly distributed over two or three sides of the room, but can usually be made to serve lighting purposes without serious alteration.

In certain of the buildings the window proper is short and has a transom above it. Above the transom there is a wide space between transom and ceiling. The presence of the transom entails some six inches or more of opaque space between the glass of the window and that of the transom. In many cases the transom was frosted years ago, but is now a dark gray, and practically impervious to light. In certain rooms lighted with windows of this type, there appears to be insufficient illumination of the desks on the far side of the rooms from the window. Just outside of more than one such room there are trees the foliage of which prevents effective window illumination. Occasionally, too, there is a larger amount of light-absorbing blackboard space than is necessary.

In three buildings, rooms were observed in which the illumination was from the pupils' right. In not one of the cases was it really necessary. The desks need to be turned around and made to face the other way.

In very many classrooms, there are two or three small windows at the top of the wall, at either the back or the front of the room. Sometimes these are at the front and are of clear glass with the shades not drawn. This means a deleterious glare upon the pupils' eyes when they are reading from the blackboard, or from wall maps at the front of the room. Over such front windows the shades should be kept drawn. Where similar windows at the back of the room mean an injurious glare upon the teacher's eyes, the blinds there should also be kept drawn.

Rooms having such front or back lighting are sometimes

so imperfectly illuminated from the side as apparently to require the use of these small windows for purposes of illumination, especially upon cloudy days. The glare from the clear glass of such open windows is as serious upon dark days as upon light ones,—possibly even more so because of the character of the diffused light. Such rooms should probably be provided with a ceiling that is perfectly white or only faintly tinted, and with prismatic glass or some other reflecting device for the small windows, the purpose of which is to throw the light against the white ceiling and the light-tinted upper portion of the walls. This permits the entrance of the light, but throws it downwards indirectly, producing the soft and very desirable indirect lighting.

Where the back windows are of full size and because of the inadequacy of the side windows must be used for the illumination of a portion of the room, arrangements should be provided by way of minimizing the glare in the face of the teacher as fully as possible. The glare is likely to be chiefly from the upper half of the window, the lower half being below the horizon line. A device that tends to deflect the light upward in ways above mentioned will also here prove to be at least a partial solution.

In many cases the side windows have transoms which were painted years ago and are practically impervious to light. These side windows should be utilized as fully as possible for the room illumination. Such transoms should be cleaned of all paint and provided with transom shades, for use when shades have to be drawn. In general such side windows should not have transoms, because of the wide opaque bar between the transom glass and the window glass. The whole of the space should be a single window. Where the side transoms are low, it is possible that they should often be of prism glass so as to throw the light to the far side of the room, or the windows should be extended upward.

In a few cases the trees, during the months when they are in foliage, greatly obscure the illumination of the classrooms. While trees in the school yards are desirable, if they are properly placed, they are undesirable when improperly placed. There can be no more justification for placing a bank of foliage in front of a window where the school work requires good light than there is of building a stone wall in front of such a window. The board of education has carefully protected the children from the presence of such an obstructing wall. They must equally protect from obstructing banks of foliage.

Present and past boards of education are to be commended

for having placed the additions to buildings in such wise as usually not to obscure the lighting of rooms already constructed. A mistake of this type, though not a serious one, was observed at the Hall School; but it is very rare.

The tinting of the rooms is not always related to the illumination. In standardizing the color schemes the authorities have chosen very satisfactory tints, which seem, however, to be applied uniformly throughout a building. Rooms of south illumination receive exactly the same treatment as rooms of north illumination. Poorly lighted corridors and cloak rooms are treated exactly the same as rooms brilliantly lighted from south exposure. It would appear that rooms having only north light should have a color scheme that is lighter and brighter and warmer than rooms that face the south. It would seem that rooms having east and west exposure—the orientation that represents the current building policy of the board,—should probably be intermediate between that of north and south rooms. Ground floor rooms should probably receive slightly different treatment from those of the clearer second story. Poorly lighted corridors, closets, cloak-rooms, etc., should certainly receive a treatment different from that of the well-lighted outer portions of the building. A classroom in which the light area is small in proportion to the floor space should be given a bright tint, while a room with an excess of lighting area, of which there are several in the city, should be given darker tones.

The older buildings that are to be used for many years yet should be carefully studied by way of making their appearance light, bright, and attractive. The old school buildings are most in need of it. In general, buildings are clean, and present a good appearance from outside. Much, however, that could be done inside with white enamel paint has not yet been done.

The window shades in a few rooms visited were in very bad condition; and in one or two rooms there were no shades of any kind. It was explained that the old ones had worn out some time ago, and that their turn had not yet arrived for receiving new shades. The translucent shades recently furnished are not of satisfactory character for controlling the light in certain of the classrooms, because of their open texture. A smooth, non-porous blind of white or cream would not only be more serviceable, but would give a far better effect to the appearance of the room.

Teachers appear often to be negligent in the management of the shades. In certain rooms visited the shades were not drawn over the small windows above the blackboard at the front of the room, although not needed for illumination of the

room. The same was noticed in the management of the blinds over the small upper back windows. Where side windows furnished the major illumination and where this is excessive, as in a few cases, shades were not drawn with a view to cutting off the frontal glare in the eyes of the pupils by lowering chiefly those at the front of the room and leaving the rear ones full height. Rooms were sometimes dark because blinds that had been drawn in the morning, when the sunlight reached the windows, were left at the same position when the sun was at the other side of the building.

In certain cases the light in the corridors might be greatly increased through the use of glass doors for the buildings. The lower corridor of the Junior High School, for example, and especially the stairs leading from the lower corridor to the second floor are very dark on the brightest days. Artificial illumination is provided, but the lights were not usually turned on when the building was visited. The use of glass doors at the front of the building, the removal of obstructions now in the corridors, and a more generous use of white surfaces would very greatly relieve the difficulty.

The classrooms in the old buildings face all directions. In its new buildings the board has wisely decreed that classrooms shall face either the east or the west, but not the north or the south. This policy should be adhered to in the building of additions to old buildings. To adhere to this policy in the building of additions it is not always possible to introduce the factor of building symmetry. This, however, is not necessary. All of the rooms in the recent addition to the Alexander building face the south, when they may just as well have faced east and west. In the new addition to the Sigsbee, four new rooms have only north light.

Noises

In the construction of the newer buildings the tendency is clearly discernible to place them on streets where there are no car lines. A number of the older buildings are near car lines. A few of them are so very near that the work is disturbed by noises and dust. As old buildings are replaced by new ones, this condition can be remedied by securing a different site within the district.

In one case the work of the building seemed to be considerably disturbed by the noises from a near-by garage, livery stable, and blacksmith shop. There should be city ordinances that forbid the location of establishments of this character within a certain minimum distance from school buildings.

In general it can be said that the buildings are so placed

that children are not appreciably disturbed by noises coming in from the neighborhood. The writer can recall no single case of a class having been disturbed by any such noises during the period of his visit.

Seating

The newer buildings are supplied with adjustable seats and desks of modern kind. Occasionally in the older buildings one finds adjustable desks. As a rule, however, except in the recent buildings, all of the desks of a room are of the same size and are non-adjustable. Since the children within a class are never all of the same size, the results everywhere in such rooms is that some of the larger children have to work in seats and at desks that are much too small for them, and in other cases the seats and desks are too large or too high for the children. In one building a whole sixth grade class was observed seated at desks of a size appropriate for fourth-grade children.

Adjustable desks should be furnished all of the classrooms of the city. It is not necessary to supply the entire room with this type of desk. One or two rows of adjustables placed through the middle of the rooms will provide for the necessities of the children who are exceptionally large or small. This has already been done in a few classrooms in the city. It should be made universal until such time as the non-adjustable desks have disappeared. It may be urged that the old non-adjustable desks are in stock and that the city cannot afford to scrap them until full service has been secured from them. Our recommendation is not that they be scraped, but that they be so distributed through the city that every room will have some of the adjustables and some of the non-adjustables. Certain rooms, especially in the newer buildings, are equipped wholly with adjustables. Some of those could be distributed to other buildings, and the non-adjustables used in part in the newer buildings, until such time as the city can afford proper seating for all.

It is also possible to place within the classrooms, using the desks at present in stock, one row of desks larger than the average size used in the room, and one row that is smaller than the average size.

Seats and desks in one of the buildings were observed that were very old, instable, and loose in the joints. The surfaces of the desks were so rough and uneven that certain of them were very unsuitable for writing. The wood presented evidences of the setting in of dry rot. At some stages in their career seats must be adjudged to have served their day. Evidently some of

those in the Michigan building have served more than their time.

In two or three buildings large numbers of broken, unserviceable desks were found stored in the basement. Since the space is sometimes needed, since they can only gather dust and present an undesirable appearance, and since portions of them can be used for the repair or rebuilding of desks, all such accumulations of broken desks should be removed to the repair rooms. Rough desk tops can there be re-surfaced and re-varnished.

Special attention should be given to the seating of special rooms. In the rooms for the auxiliary class in one of the new buildings, there were seats and desks for twenty-five pupils, although the class is only about half this size. It would usually be better to supply such rooms with movable furniture, chairs, tables, sewing-machines, work benches, etc. While certain of the systematic handwork will be obtained in the regular shop, kitchen, etc., the rooms for auxiliary children should certainly be equipped so as to permit a large variety of practical activities.

Movable chair-desks are now used in certain of these special rooms in the city. In buildings where there is a lack of indoor play space for rooms in which a variety of special activities are desirable, the movable chair-desk offers large assistance in the solution of the problem. We recommend both to the board and to the professional people a consideration of the use of movable furniture by way of solving certain of the present problems.

The Cleaning of Buildings

In the matter of cleanliness all buildings presented a favorable appearance. Even when the woodwork was old, roughened, and discolored, it appeared to be at least clean and sanitary.

Vacuum cleaning has been introduced into all of the more recently constructed buildings and vacuum systems have been installed in a few of the older buildings. The systems were observed in operation in more than one building and the cleaning was proceeding without the scattering of dust. In two buildings visited in which vacuum cleaning systems are found, dry sweeping with brooms and without the use of any sweeping compound was raising clouds of dust and making the air impossible for healthful breathing. It is clear that certain of the vacuum cleaning systems in the city need looking into. Where a system will not work, a mistake has been made in the original purchase, in the installation, or in the current management. Whatever be the cause of the difficulty, the system should be made to work, or removed from the building and disposed of.

Dry sweeping is the plan employed in all buildings that have

not vacuum cleaning systems. In no case observed were janitors using sweeping compounds either in classrooms or in corridors. During the sweeping period buildings are filled with dust, which settles down upon the floors, etc., to be kicked up by the children and breathed during the following day. The use of a good sweeping compound would remove the dust from classrooms and corridors instead of leaving it there for the children to breathe.

Blackboards

In the newer buildings and here and there in other buildings one finds blackboard slate of good quality. It is the best type of blackboard, except that made of glass,—which is not yet commonly used in America. The objections to very many of the plaster blackboards used throughout the city and repainted occasionally is that they tend to grow too “shiny,” and because of reflections make it difficult or impossible for pupils to read blackboard writing from certain positions within the room.

In only one building were the blackboards observed to have holes in them with the mortar and sand coming out. Everywhere else they seemed to be in a proper state of repair.

In the rooms of a number of the older buildings, there is clearly too large a quantity of blackboard space. The wide board at the front may well be retained. In such cases the upper portions of side and back boards may be cut off by a moulding and the upper portions of the blackboard tinted to harmonize with the wall above; or it can be used, as in many instances at present, as a panel for pictures, pupils' papers, drawings, etc.

In a number of cases small segments of the blackboard are to be found between back or side windows. Blackboards should never be placed in such position. They should be removed or painted the wall color.

Except for one or two subjects, a large amount of blackboard space is not desirable. There should be not a single foot more of blackboard than is necessary. An interesting device was observed at one of the buildings that enabled a school to have all of the blackboard space that it needs in times of greatest demand, without making a large amount of fixed classroom blackboard necessary. The school owns forty small blackboards, about $3\frac{1}{2}$ by $3\frac{1}{2}$ feet, of light wood, each mounted upon two thin legs, so as to bring it to the proper height. The board can be moved to any desired position and stood against the wall, doors, cabinets, etc. When it is no longer needed, it can be

pushed into a storage closet. Being only $\frac{5}{8}$ of an inch in thickness, not a great deal of storage space is required.

Floors

Recently laid floors, whether in new or old buildings appear to be always of close-grained hardwood,—maple in every instance examined. Pine or other loose-grained wood seems not to be used.

Many of the floors in the older buildings are dark and unsightly because of an excessive use of oil. There are reasons to think that the floors in these rooms where children spend so many of the formative years of their existence should be as clean, as bright, and attractive as the floors in a well-kept home.

In most cases the basement playrooms have been given a good flooring. In two or three buildings visited, this playroom had a floor of cement. The dust of the cement combined with the dust entering from the outside playgrounds through the windows makes the air practically impossible for play purposes. All playrooms need a floor that will not produce dust, and one that is not so hard as cement. Wood or battle linoleum such as found in the corridors of the new South High School should be used.

Toilet Rooms

All buildings are supplied with automatic flushing toilet facilities of modern type. The rooms are usually sufficiently large, usually well lighted. The stalls are provided with doors, and placed along the sides of the room so as not to obscure the light of the usually small windows around the top of the room. An excellent quality of individual porcelain fixtures with open front wood seats were the only type observed. The ventilation has already been discussed.

A single wash-basin is the usual allowance provided each of the toilet rooms throughout the city. In some cases this is a good modern porcelain standing wash-basin with running water, and in other cases it is nothing more than a soapstone sink with no plug provided that permits the holding of the water. The only possibility of use is to hold the hands under the faucet, the sink being of use only for catching the waste water and carrying it away. In a few cases bar soap was found, and in a few cases there were paper towels on the rack. More often, however, there was no soap of any kind, and while paper towels seemed to be commonly a portion of the stock in the storeroom, they were often not present on the racks provided.

These washing facilities are inadequate in almost every way.

The soapstone sinks are not of the right character. One to a toilet room intended to accommodate several score children at a time is wholly insufficient. Bar soap is not much better than the common roller towel from a sanitary point of view. The deficiency is to be noted in the newer buildings as well as in the older ones. The provision of toilet facilities for teachers and principal separate from that of the children is not usual. There should be such provision.

A very small number of shower baths have been installed in connection with the toilet rooms in the newer buildings. In most cases they are not much used because of the lack of dressing booths, of curtains for the showers, etc. When the statement is made that it is useless to provide bathing facilities simply because recent experience in certain of the buildings show that they are not used, it must be replied that the proper conditions for use have not been supplied at the same time. Further facilities are indeed needed, but they need to be placed in proximity to the gymnasium, instead of their present distribution and location. After being properly located they should be provided with dressing booths, locker facilities, and the possibility of a greater degree of privacy.

The Playgrounds

The playground facilities provided for the use of the different schools are very unequal in amount. Certain of the buildings are well provided. At others the playgrounds are much too small. The board is to be commended in its policy of enlarging the smaller playgrounds as rapidly as conditions permit. A good minimum standard to set is 100 square feet per pupil in average daily attendance.

The surfacing of playgrounds is a serious problem. The grounds at more than one of the buildings are surfaced with a mixture of loose sand, gravel, and clay. At one of the buildings visited on a windy day great clouds of dust arose from the children's play. When the wind is blowing towards the building, the result is that the ventilation shafts and the rooms receive too large a supply of dust from such a playground. In wet weather the sand and clay is carried into the rooms on the children's shoes.

A number of the playgrounds need either to be filled or to have more adequate facilities for draining. Grounds should be so drained that they are available for play on practically every day of the year, except during the time when it is actually raining.

Open-Air Rooms

The board of education seems to have supplied no open-air rooms for the anemic and tubercular children of the city. Neither the old nor the new building provide open-air rooms. In observing the two open-air schools in connection with the Sigsbee and the West Leonard Schools, everything except the teacher and the instruction supplies appear to be furnished by voluntary co-operative organizations, instead of by the board of education.

The beneficent results of the open-air treatment of certain types of children are so evident, it seems that the board should consider whether it should not arrange for at least one sunny open-air room in each new building that is constructed; and to provide for such a room here and there in the buildings already in use.

CHAPTER XIV

THE COST OF PUBLIC EDUCATION IN GRAND RAPIDS

Harold O. Rugg

Grand Rapids is very liberal in its endowment of public education. There are many outstanding facts which indicate most definitely the extent of this liberality: It spends more for school purposes and devotes a larger part of its municipal money to schools than most cities of the same wealth; it does not, however, take advantage of its capacity for making permanent improvements through taxation, for it sells bonds for such purposes when all needed funds could be raised through local taxation; it provides a sufficient number of teachers to permit instruction of pupils in small classes; it pays teachers better salaries than do most other cities of its class; it does not, however, endow supervision of instruction on as adequate a basis as other cities of its class; while spending more per pupil for both business and educational purposes it spends a larger proportion of its school money on business activities than do other cities of its class. In its distribution of money for educational activities it spends about the same amount per pupil for administration, operation, maintenance and instruction but gives a larger **proportion** of its school money to overhead expenses and upkeep of school plant than it does to instruction and operation of the plant. On analyzing its expenditures in detail we find that with the exception of supervisory activities Grand Rapids ranks high among cities of its class in the support that it gives to each type of activity; when measured in terms of per pupil expenditure elementary and secondary schools are both more liberally supported than in other cities of the same wealth; at the

same time a much larger **proportionate** amount of financial support is given to high schools.

Chapter XIV of this report will support by detailed evidence and comment the above statement concerning school finance in Grand Rapids.

Definition of Various Terms Used in This Report.

1. **Administration.** The term **administration** will be used in this report to denote the activities of the central offices. These include the following: 1. The superintendent's office, including assistant superintendents, officer in charge of attendance and hygiene; 2. The office of the business manager and the entire central staffs of the superintendent of buildings and the supply clerk.

2. **Supervision and Instruction** will include the activities of all school supervisors whether of "subjects" or of "grades"; all principals and their clerks; all teachers of whatever grade.

3. **Operation** will apply to all activities of **operating the plant**, including for Grand Rapids the following: all work of janitors, assistant janitors, janitresses and engineers, and any other operating employees; fuel; and janitors' and engineers' supplies.

4. **Maintenance** will apply to all activities connected with repairs to buildings, replacement of equipment, etc., whether concerned with labor or materials.

5. **"Capital Outlays"** will apply to all activities connected with permanent improvements to school plant, building of new buildings, acquisition of school sites, etc. In general the terms used will follow the accepted definition of the National Association of School Accounting Officers and the United States Bureau of Education in connection with the "standard form" of the Bureau of Education for reporting school financial facts.

6. **Current Expenditure** is a term applied to all expenditures, exclusive of capital outlay, incurred in the running of the public schools during one year. It includes Administration, Supervision and Instruction, Operation and Maintenance.

7. Under **Business Purposes** will be included the activities of: 1. All offices in charge of Buildings, Supplies, Auditing and Finance; 2. All operation of Buildings; 3. All maintenance of Buildings.

8. Under **Educational Purposes** will be included activities of: 1. The Superintendent's offices, salaries and expenses; 2. Salaries and expenses of supervisors and principals; 3. Salaries of teachers; 4. Educational supplies; 5. Textbooks; 6. All other "instructional" expense for schools.

9. **"Average."** In this report all "average" expenditures are

computed by the commonly used "simple average" (or arithmetic mean) obtained by adding up the total scores and dividing by the number of cities.

10. **Cost Accounting** will include all activities of: 1. Distributing charges against buildings, departments, and funds; 2. The computation of current "unit costs"; 3. The preparation of cost data for Grand Rapids' activities in previous years (called "historical" cost studies); 4. The preparation of comparisons of costs in Grand Rapids and other cities (called "comparative" cost studies); 5. The interpretation and application of the cost computations to improving school practice.

A. The Legal Basis of the Public Schools

At the present time, the Grand Rapids school system is operating under the charter granted the city in 1905, and revised in 1907. There are four definite financial provisions in these chartered powers of the Board: 1. A statement of the commencement of the fiscal year; 2. The time for estimating taxes for the ensuing year; 3. The method of raising revenue and the limit of possible taxation for school purposes; 4. The methods and limitations of borrowing money for temporary school purposes and for permanent improvements.

1. The first two of these provisions can hardly be said to be planned to aid the business department of the schools in its annual treatment of educational data. The financial year is to commence April 1st of each year. This provision if followed out, would result in a bad adjustment of the financial accounting to important problems of school administration. A school year naturally ends with the month of June. The annual reporting of school facts, the determination of annual per capita costs in terms of pupil enrollment and attendance, the estimating of supplies needed for the ensuing year as determined by current usage, the planning of the various items in the budget; all these and other necessary phases of school practice concur in a demand for a financial year coinciding with that of the educational department. Notwithstanding the chartered provisions, the Board of Education has recognized the needs of the situation, and for the past ten years has operated under a financial year commencing with July 1st.

2. Section 12 of the revised charter (1907) states that the Board shall annually make an estimate of taxes necessary for the ensuing year on or before the first Monday in March. This means that the business department is forced to undertake the task of planning a scientific budget for the ensuing year shortly after the middle of the current year. Instead of being able to

rely on fairly complete expense data for the current year, the business department is compelled to resort very largely to data for previous years. The Board of Education should look forward to the time when such a change can be effected in these provisions that both the commencement of the financial year and the time of estimating taxes for school purposes can be moved forward to more closely approximate the limits of the school year.

3. The Board of Education of the city of Grand Rapids has not the power to *levy* taxes for the support of schools. Its legal powers include only the *estimating* of the amount of taxes deemed necessary for such support. The actual *levying* of taxes can be done only by the single taxing body of the city, namely the Common Council. It is advised in its decisions as to the apportionment of the city budget and the levying of taxes by a Board of Estimate, composed of the mayor, the city clerk, the city comptroller, three members of the Common Council, and three citizens to be appointed annually by the mayor. In both appointment and composition the Common Council and the Board of Estimate are political organizations. The business department of the Board of Education, during the last ten years has attempted to develop an adequate system of budget making designed to secure financial support that will closely approximate the real demands of the system. (A more complete treatment of this subject will be taken up in a later section of this report.) These attempts at scientific budget making are defeated by placing the levying power in the hands of a political body, elected by wards and not primarily interested in securing the best provision for complete educational development in the city. Officers of the Board of Education have recognized the needs of this situation and have considered ways and means of effecting definite changes in its legal status that would result in a more thorough and scientific (and less political) control of the annual school budgetary and tax levying procedure. It is to be regretted that changes have not yet been effected that will give the Board of Education power to pass finally upon the budget, and establish its own bonding policies in school matters. There are now several cities and a few states in the country that give the power to levy school taxes to the Board of Education. California, Ohio and Kansas are illustrative of this practice. In these cases there are certain restrictions on the taxing powers of the Board, such as the statement of the maximum amount of taxes that may be raised on the assessed valuation of real property in the city. Missouri has seen fit to give St. Louis and Kansas City full taxing powers, with an upper limit beyond which they cannot tax themselves for school purposes, of six mills on the dollar. The list of cities in

which the Boards of Education have complete taxing power includes Chicago, Indianapolis, Cincinnati, Cleveland, Boston, Denver, Portland, and Seattle.

The Limit of Possible School Revenue.

In any one year the Board of Education can raise by taxation not more than five mills on the dollar of assessed valuation for general school purposes. In addition, it has what is known as a one-mill tax. For buildings, new sites, and for paying school bonds it can raise an additional five mills on the dollar. Table LXIII presents a detailed analysis of the property valuation and the money raised by taxation for school purposes during the past ten years. Diagrams LXXVIII and LXXIX show the curves of possible revenue for general purposes and for permanent improvements, together with the curves of actual expenditures for these two major purposes.

Several outstanding facts may be listed as a basis for discussion:

1. The assessed valuation of the city has more than doubled in ten years. Half of this increase is a result of the recent reassessment of property values made last year.

2. The amount of taxes raised for general school purposes has increased more than four fold in ten years.

3. The amount of money raised annually by taxation during the past ten years has been practically constant, (in spite of the fact that over a million dollars have been raised by bond sales for permanent improvements).

4. There has been a remarkably rapid increase in the number of mills raised for general purposes, increasing from 2.29 and 1.94 mills in 1906 and 1907 respectively, to 5.46, 5.30 and 5.30 in 1912, 1913 and 1914.

5. In the past ten years Grand Rapids has never levied more than 1.89 mills for permanent improvements. It has very generally taken out of the annual budget about one-third of its privileged amount for these purposes.

The table will bear more minute analysis. From 1902 to 1913 the assessed valuation of property in Grand Rapids increased slowly, averaging less than \$3,000,000.00 a year. Previous to 1902, in 1900 and 1901, there were large increases, \$16,000,000 and \$13,000,000 respectively. Again in 1915 a complete reassessment of property values was made, raising the total valuation by \$50,000,000. For the entire fifteen years the valuation increased at an average rate of \$8,000,000 a year.

In the mean time, the tax for general purposes has been

TABLE LXIII

Annual Tax Levies for School and City Purposes 1906-15*.

YEAR	Assessed Value	ANNUAL TAX LEVIES FOR SCHOOL PURPOSES						Total Mills Levied for All City Purposes	Per Cent That School Tax is of City Tax
		Tax General	Tax for Permanent Improvements	Total Tax	Mills for General Improvements	Mills for Perma- nent Im- provements	Total Mills		
1906.....	77,036,000	176,276.00	105,500.00	281,776.00	2.29	1.37	3.66	16.96	21.5
1907.....	78,834,500	153,156.82	107,075.85	260,232.67	1.94	1.36	3.30	15.89	20.7
1908.....	80,043,002	318,412.30	89,036.14	407,448.44	3.98	1.11	5.09	19.62	25.9
1909.....	83,528,700	229,160.20	157,415.00	386,575.20	2.74	1.89	4.63	19.37	23.9
1910.....	85,324,200	376,356.41	107,897.11	484,253.52	4.41	1.27	5.68	20.22	28.1
1911.....	89,143,670	316,291.67	121,166.50	437,458.17	3.55	1.35	4.90	19.86	24.7
1912.....	93,235,238	509,163.87	97,055.50	606,219.37	5.46	1.04	6.50	21.41	30.3
1913.....	102,293,177	541,757.16	100,089.00	641,846.16	5.30	.97	6.27	21.77	28.8
1914.....	113,791,271	602,929.70	126,792.00	729,721.70	5.30	1.11	6.41	21.23	30.2
1915.....	163,026,822	726,669.80	98,960.00	825,629.80	4.46	.60	5.06	17.39	29.1

*Data supplied by Business Manager from the Records of the Board.

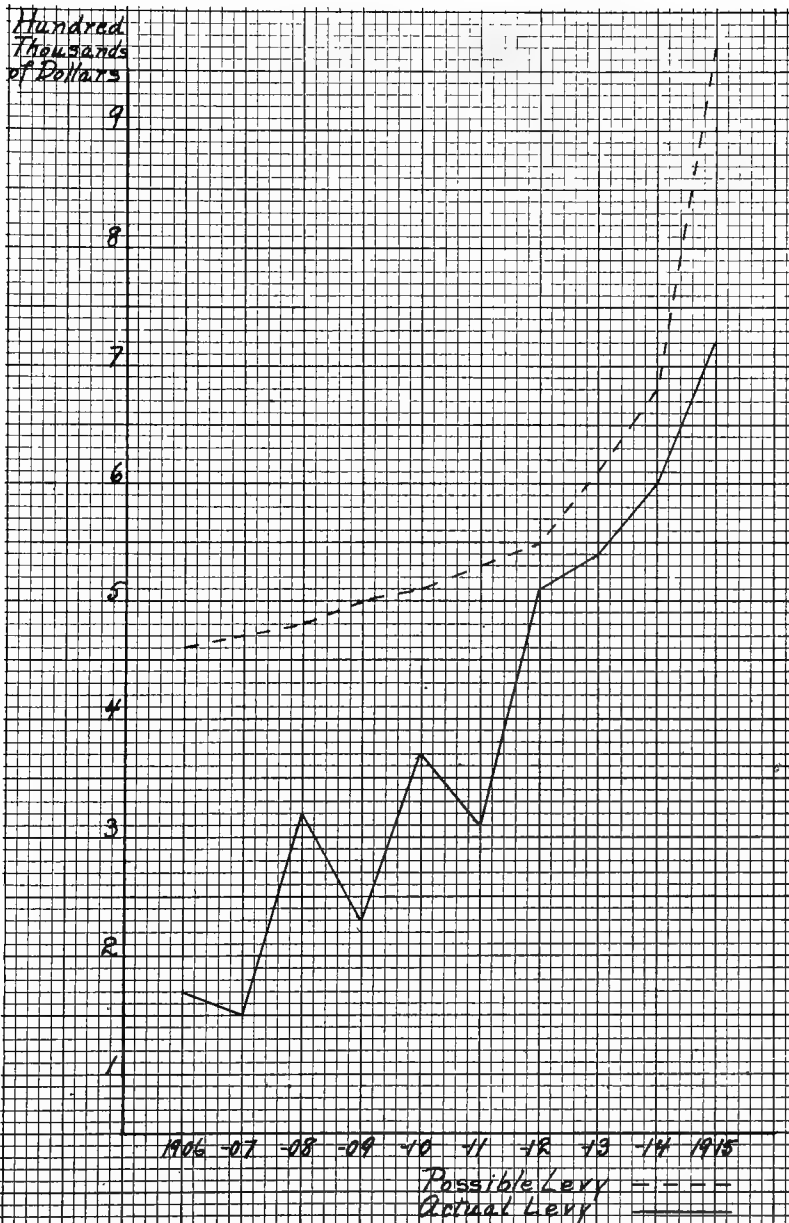


DIAGRAM LXXVIII—Comparison of curve of possible taxation for general purposes with actual tax levy, 1906-1915.

Hundred
Thousands
of Dollars

9

8

7

6

5

4

3

2

1

1906-07 08-09 10-11 12-13 14-15

Possible Levy - - - -
Actual Levy - - - -

DIAGRAM LXXIX—Comparison of curve of possible taxation for permanent improvements with actual tax levy, 1906-1915.

going up by leaps and bounds. In ten years it has increased \$550,-000, an average of \$55,000 a year. The lack of parallel between the increase in general tax and assessed valuation of property caused the number of mills raised to come dangerously near the legal limit in 1912, 1913 and 1914. In 1912 it would have been possible to put into the budget for general purposes only \$50,000 more; in 1913 and 1914 about \$70,000 and \$80,000 respectively. At a normal increase of \$8,000,000 a year from 1914 to 1915, instead of \$50,000,000 that the city was given there would have been available an assessed valuation of \$121,000,000. To raise the budget of \$726,000 would have required the tax of exactly six mills, and this would have left the Board of Education in the position of having utilized every possible source of income for general school purposes.

However, the increase which came as a result of the reassessment of property values in 1915 is an indication of two facts: First, the valuation during the years 1911-1914 was probably too low, and hence the proximity of the total mill tax for general school purposes to the legal limit (5.46, 5.30, 5.30) had not in it the elements of danger that we would have at first inferred. It is probably true that had an adequate estimate been made in 1912, that at least \$125,000,000 would have been found which, with a budget of \$509,000, would have resulted in a mill tax of slightly over four mills.

Second. Probably not for many years will there be such an increment in the assessed valuation as was made last year. If we project the past experience of the city into the future, the next few years will see relatively small additions to the valuation. With a budget for general school purposes increasing at the rate at which it has increased in the past ten years, will the Board again soon face the question: "How raise money for general school purposes?"

Let us take a concrete case. Assume that the assessed valuation of the city will increase annually \$8,000,000. Assume that the Board's annual increase in expenditure will be \$55,000 (the average annual increase for the past ten years.) What will be the mill tax situation five, ten and fifteen years hence? We set down the facts below:

YEAR	Assessed Valuation	General Tax	No. of Mills Levied
1920	\$203,000,000	\$1,001,000	4.98
1925	243,000,000	1,276,000	5.26
1930	283,000,000	1,551,000	5.48

If property valuations and school expenditures should continue to develop in the next fifteen years as they have in the past fifteen years, it is doubtless true that the Board would face no serious difficulty in financing the public schools. At the same

time, it would be working so near the legal limit of revenue that an unusual demand upon the financial resources of the Board in any one year would be hard to meet. There is, of course, no assurance that the capacity of the city, as shown by assessed valuation, will develop at the rate at which it has developed in the past. If it should not, the Board within a few years, will have to face a situation demanding some retrenchment. The fact that in the past three years the mill tax has been close to the legal limit is suggestive of the need for a constructive plan for handling this matter in the future.

The other outstanding fact, concerning the utilization of the city's financial resources, is that in spite of a heavy outlay for permanent improvements, the city has never taken advantage of its burgetary possibilities in the matter of school plant. This question will be discussed in full in the section dealing with the bonding policy of the Board of Education.

4. To provide for emergencies, the Board is given power to borrow money temporarily in a total sum not to exceed \$30,000 in any one year, this loan to be paid out of the first school money collected thereafter. During recent years, the Board has had to take advantage of this power but once, in 1914-1915, when a mistake in estimating the amount of money to be received from the state primary fund caused a deficit in current funds. For purposes of permanent improvements, the Board may borrow such money as it deems necessary (subject to approval by the Common Council) and on such terms as it deems wise. The only restrictions placed on the bonding powers of the school district are that no bonds shall be sold for less than par, bear more than five per cent interest, or run more than twenty years. The question of bonding and bonding policies, borrowing on short term notes, etc., will be discussed fully in a later section of this report.

5. Important to the later discussion of the general organization of the school system, and of the relation of the business and educational departments, is the provision that the Board may apportion to its administrative officers, the superintendent of schools and the business manager, such duties as it sees fit. Thus it is clear that aside from questions of taxation, bonding, and general finance, the Board of Education is unhampered in determining the methods of organization and administration of the public schools of the city.

Section B. The Sources and Amounts of Revenue of the Board of Education

Table LXIV summarizes the sources and amounts of revenue of the Board of Education for the ten years 1906-1915 inclusive.

ive. During that time the total net receipts of the Board have nearly tripled, and the funds raised by local taxation have doubled. With the exception of 1912, during the years 1909 to date the Board has obtained about 20 per cent of its income from its apportionment of the state primary fund. It may be noted that this is a larger proportion of city school revenues coming from a state school fund than will be found in most states. It is common to find 90 per cent or more of the school revenues raised by local taxation. The amount of the apportionment is determined by the number of children of school census age (5 to 19 years inclusive). For some time past it has been felt that the annual school census was not resulting in an accurate statement of the number of persons of school census age. The recently organized Bureau of Census has estimated that Grand Rapids should have a considerably larger number of persons reported at the ages 5 to 19 inclusive than has been reported. If this estimate is correct, it would mean that the Board would receive from the state primary fund each year several thousand dollars more than is indicated in the table. Within the past year, a continuing census has been established in the office of the business manager, and plans have been perfected for obtaining a correct count of the persons of school age.

Furthermore, the business department is somewhat hampered in its planning of the annual budget by uncertainty as to the size of the state primary apportionment. With the exception of 1912, the size of the fund has been fairly constant, running about \$220,000. In that year, the date of apportionment of the state fund was changed from May to July, with a consequent loss to the Board of some \$200,000 of primary money. This deficit was made up by a legislative permission to borrow \$225,000 of the city, the same to be paid in three annual installments of \$75,000 each.

The Relation of Revenue Receipts to Current Expenditure of the Board of Education. During the last ten years the Board of Education has increased both its expenditures and its revenues very rapidly. Has the one increased more rapidly than the other? Table LXV presents the relation between revenue receipts and the annual expenditures during the past ten years. These data have been taken from the Annual Reports of the United States Commissioner of Education for 1906 to 1915 inclusive, as compiled and reported by the business manager of the Grand Rapids Board of Education. An examination has been made of the records from which the data for 1915 were reported to the Commissioner, and it is evident that the data, although

TABLE LXIV

Sources and Amounts of Revenue of the Board of Education, 1906 to 1915 inclusive*.

YEARS	Balance	State Primary Funds	City Taxes	Bonds	Miscellaneous	Total Net Receipts	Grand Totals
1906	163,897.33	98,494.40	370,102.89	32,291.08	14,047.91	514,936.28	678,833.61
1907	131,555.02	320,542.00	284,902.76	12,000.00	14,355.30	631,800.06	763,355.08
1908	239,181.22	286,344.50	261,204.07	.....	13,822.87	561,371.44	800,552.66
1909	165,963.86	184,718.50	413,648.98	111,946.00	15,786.66	726,100.14	892,064.00
1910	91,725.31	206,564.00	386,546.51	339,051.50	19,163.34	951,325.35	1,043,050.66
1911	77,127.47	232,214.80	482,258.20	967,733.00	17,149.83	1,699,355.83	1,776,483.30
1912	84,252.55	14,813.00	437,782.18	290,352.92	19,382.80	762,330.90	846,583.45
1913	26,484.03	220,959.55	606,505.02	.....	21,274.18	848,738.75	875,222.78
1914	15,902.08	219,543.48	640,360.81	168,850.00	32,692.21	1,061,446.50	1,077,348.58
1915	36,513.94	215,499.30	726,145.99	424,700.00	28,649.91	1,394,995.20	1,431,509.14

* Data from Annual Reports of Board of Education.

not classified in the Board's accounts on the same basis as that used by the Bureau of Education, have been reclassified and reported with care. Since the data are organized in the required

TABLE LXV

Relation of Expenditures to Revenue Receipts 1906-1915*.

YEAR	Total Expenditures	Revenue Receipts	Excess of Expenditures Over Receipts	Excess of Receipts Over Expenditures
1906	438,661	482,645	.....	43,984
1907	435,570	561,871	.....	126,301
1908	504,822	561,371	.....	56,549
1909	536,010	621,805	.....	85,795
1910	537,660	612,274	.....	74,614
1911	552,250	728,149	.....	175,899
1912	637,210	466,855	170,355	.....
1913	665,227	841,032	.....	175,805
1914	725,521	884,882	.....	159,361
1915	764,398	966,222	.....	201,824

* Data as reported by Business Manager of Board of Education to U. S. Commissioner of Education, Annual Reports 1906-1915, Vol. II.

form, it is more convenient to take them from the Commissioner's Reports.

The table shows that the expenditures of the Board of Education have exceeded the revenue receipts but once in the past ten years. In 1912 there was a serious deficit in the teachers' salary fund, due to the fact that the May apportionment of the state primary fund was not made. As we have noted above, the deficit in this year cannot be said to be due to any unfavorable condition of the finances of the Board of Education. Judged by the condition of many American cities, the relation between current expenditures and revenue receipts of the Board of Education in Grand Rapids is very satisfactory.

Section C. The Capacity of the City to Support Schools

Table LXIII indicates that the city of Grand Rapids is liberal in the measure to which it taxes itself for the support of schools. It is raising large amounts of money for educational purposes and it is still far from taking advantage of its legal privileges in school taxation. The question is fair, however: Is it raising as much money as it should for school purposes when measured in terms of its financial capacity to do so?

We have no definite ideal standard by which we can answer the question: "How much money should a city raise for school purposes?" We can, however, state the degree to which a city conforms to or betters the common practice of the day. We can legitimately compare the procedure of a city in any aspect of the administration of its schools with other cities having approximately the same financial status.

The Bases upon which the Cities have been Compared. No

entirely satisfactory basis has as yet been worked out for the grouping of cities for comparative purposes. It has been agreed that comparison should be made only of cities of roughly the same size. It is a well-recognized fact, however, that cities of the same size vary widely in their wealth, distribution of their population by nationality and by occupations, prevalent wage scales, rapidity in growth of the number of children of school census age, proportion of the school population in parochial schools, etc.

An ideal list with which to compare the financial situation in Grand Rapids could best be made up by taking account of all of the above factors. To do so, however, would reduce the size of the group to such an extent that it would be of little value for practical comparative purposes. In selecting the cities used in this report, three criteria were followed: 1, the cities must be roughly of the same size; 2, they must have approximately the same wealth per person in the population; 3, they must have roughly the same wealth per school census child. It is thus believed that the most adequate single basis for comparing school finance in cities is the per capita amount of money available for school purposes. In computing the amount of money raised per school census child, since the legal school census age is 5 to 19 years inclusive in Grand Rapids, the number of children between these ages has been computed for each of 19 cities from the most recent census returns (1913).) It was found that the application of any other factors of comparison would reduce the size of the group to a number where position in the group would have little practical significance. The adoption of the above criteria of per capita wealth per person and per school census child resulted in the elimination of such cities as Hartford, Connecticut, and Salt Lake City, Utah,—cities of roughly the same size as Grand Rapids, but of 70 per cent greater capacity for supporting schools. The original list consisted of the 26 cities that in 1910 had populations ranging from 80,000 to 125,000. Of these cities, Dallas, Texas, reported no data to the United States Commissioner of Education in 1915. Spokane, Washington, and Omaha, Nebraska, were eliminated because their per capita wealth so greatly exceeded that of Grand Rapids (\$1,700 and \$2,000 per inhabitant as contrasted with \$1,000 for Grand Rapids). Yonkers, New York, and Youngstown, Ohio, two cities that in 1915 were estimated at 96,610 and 104,489 are not included in the final list because only those cities were taken that had populations of between 80,000 and 125,000 in 1910. These two cities have grown so rapidly in the past five years that they are now more clearly in the same population class with Grand

Rapids. Since the financial records for 1915 had to be secured through correspondence with the United States Bureau of Education, the records for these two cities were not included in the original tabulations made. The final list as used in this report includes one city as large as 174,108 (Birmingham, Alabama, per capita wealth almost identical with that of Grand Rapids) and one city 96,854, Kansas City, Kansas. Practically all the remaining cities cluster very closely around Grand Rapids in population (125,759) and in per capita wealth (\$1,029.99). Thus, school finance in Grand Rapids will be discussed in this report through a comparison of its status with that of each of the other eighteen cities used in the following tables.

1. Degree to Which Grand Rapids is Supporting Schools

Table LXVI and Diagram LXXX compare the total expenditures of Grand Rapids for all school purposes, the expenditures per inhabitant with those of 18 other cities. A table which has been computed giving the estimated real property valuation per inhabitant shows that Grand Rapids is practically the average city of its group in its capacity to support schools, i. e., it ranks ninth in a list of nineteen cities. This point should be emphasized in connection with the later discussion of comparative expenditures. Grand Rapids is considerably above the average in its per capita current expenditures, ranking third in expenditure per inhabitant.

Table LXVII and Diagram LXXXI show that Grand Rap-

TABLE LXVI

Expenditures for all School Purposes per Inhabitant 1913*.

CITY	Total	Expenditures for Schools Per Inhabitant	
		Amount	Rank
Albany	\$426,362	\$4.17	9
Birmingham	421,230	2.66	19
Bridgeport	369,283	3.29	17
Cambridge	560,508	5.14	4
Dayton	506,452	4.15	11
Des Moines	684,150	7.26	1
Fall River	515,325	4.16	10
GRAND RAPIDS	628,924	5.21	3
Kansas City	386,522	4.22	8
Lowell	437,987	3.98	13
Lynn	386,355	4.02	12
Memphis	475,922	3.39	15
Nashville	387,357	3.40	14
New Bedford	475,445	4.41	6
Paterson	578,864	4.38	7
Richmond	385,181	2.89	18
San Antonio	366,618	3.31	16
Scranton	621,733	4.49	5
Springfield, Mass.	689,998	7.07	2

* Data from U. S. Bureau of Census, Bulletin No. 126, p. 22.

ids is spending more money on schools in proportion to its capacity for doing so than the average city in the group. It is in the upper third, ranking sixth in 19 cities in expenditure per \$1,000 of real wealth, although it ranks ninth in estimated real wealth per inhabitant. Furthermore, in proportion to its capacity, it is spending more than twice as much as the cities ranking 17th, 18th and 19th in the list, and practically the same amount as the

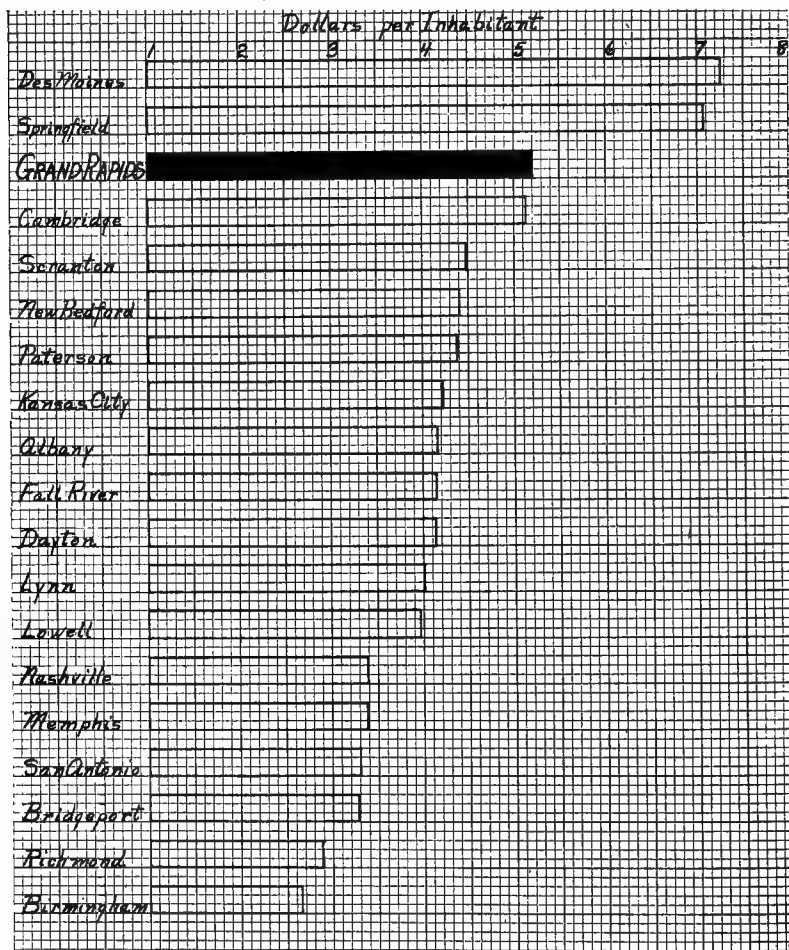


DIAGRAM LXXX—Expenditures per inhabitant for 19 cities.

cities ranking 3rd, 4th and 5th. The city is a leader in the degree to which it is taxing its capacity to support schools.

TABLE LXVII

Expenditures for School Purposes per \$1,000.00 of Real Wealth;
Rank of 19 Cities, 1913*.

CITY	Population	Estimated Real Valuation of Property†	Total Expenditures for Schools	Expenditures per \$1000 of Real Wealth Amount	Rank
Des Moines	94,238	87,887,532	684,150	7.78	1
Scranton	138,621	101,944,538	621,733	6.10	2
Paterson	132,236	101,993,413	578,864	5.68	3
Fall River	123,982	97,935,957	515,325	5.26	4
Lowell	109,885	84,792,243	437,987	5.17	5
GRAND RAPIDS	120,695	124,313,651	628,924	5.06	6
Cambridge	109,045	115,947,300	560,508	4.84	7
Lynn	96,099	81,529,354	386,355	4.74	8
New Bedford	107,766	101,744,559	475,445	4.67	9
Springfield	97,654	151,960,100	689,998	4.54	10
Kansas City	91,687	90,367,010	386,522	4.28	11
Nashville	113,822	102,881,745	387,357	3.77	12
Albany	102,344	115,325,264	426,362	3.71	13
Bridgeport	112,144	105,965,619	369,283	3.49	14
Dayton	122,079	150,005,610	506,452	3.37	15
San Antonio	110,679	115,415,044	366,618	3.19	16
Memphis	140,351	184,198,795	475,922	2.59	17
Birmingham	158,200	170,239,276	421,230	2.48	18
Richmond	133,185	198,358,386	385,181	1.94	19

* Data from U. S. Bureau of Census, Bulletin No. 126, p. 22.

† Computed from the stated assessed valuation and rate of assessment.

2. How Grand Rapids Spends Its Money

The Extent to which it Supports Schools as Compared with the Way in which it Supports other City Departments

There are two ways in which may be determined the extent to which the city's money is going into the schools, 1, by a comparison of the absolute expenditure per person for each of the city departments; 2, by a comparison of the per cent of the total governmental cost payments that goes to each department. Neither basis for judgment is sufficient if taken alone; the two taken together provide a method of determining the status of the question. Table LXVIII and Diagram LXXXII present the absolute expenditures per inhabitant, and Table LXIX and Diagram LXXXIII the percentile expenditures. The last column of Table LXVIII indicates that Grand Rapids spends slightly less per inhabitant than the average city in the group, (although the absolute difference is slight) for the operation of all city departments. But of the total governmental cost payments, it devotes a larger percentage of its municipal income to schools than all but three of the 19 cities. It ranks third in the 19 in the absolute amount spent for schools. The city is devoting relatively

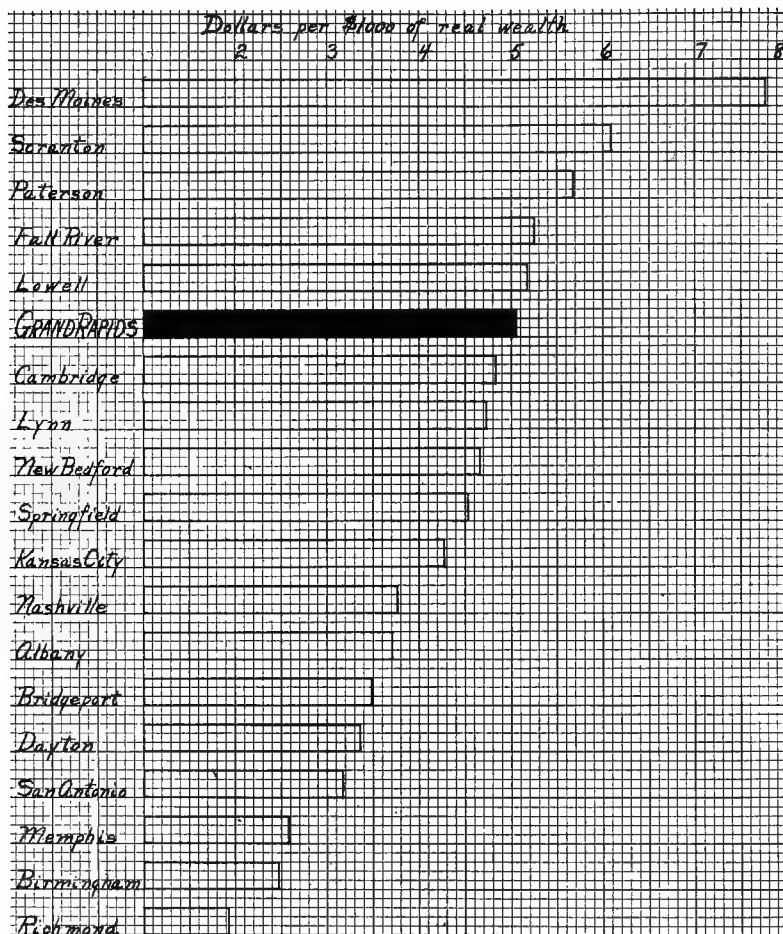


DIAGRAM LXXXI—Expenditures for all school purposes per \$1000 of real wealth—19 cities.

little of its income to police, highways, sanitation and charities, but a comparatively large proportion to schools. Nearly one-half of its municipal income goes to the support of the public schools. Table LXX indicates the position of the city in the list of 19 cities, in the per cent of total governmental cost payments devoted to the various city departments. Thus, the city is not only liberal in its total expenditures per inhabitant, and its

TABLE LXVIII

Expenditures per Inhabitant for Various City Departments.
19 Cities 1913*.

CITIES	Gen'l Gov't.	Police	Fire	Health	Sanitation	Highways	Charities	Schools	Total Expense for all General Depts.
Albany	1.84	1.99	2.10	0.20	1.13	1.38	0.45	4.17	14.93
Birmingham	0.62	1.01	1.37	0.13	0.85	0.96	0.22	2.66	8.20
Bridgeport	1.23	1.36	1.90	0.14	0.99	1.76	0.92	3.29	12.46
Cambridge	1.13	1.72	1.33	0.52	1.93	3.08	0.65	5.14	17.31
Dayton	0.94	1.25	1.23	0.19	1.31	2.29	0.51	4.15	12.44
Des Moines	0.95	0.95	2.34	0.12	0.72	1.51	0.05	7.26	15.60
Fall River	0.67	1.42	1.40	0.41	0.90	1.94	0.98	4.16	12.59
Grand Rapids	1.15	1.15	1.73	0.37	0.84	0.80	0.23	5.21	12.32
Kansas City	0.84	0.90	1.42	0.09	0.46	0.76	0.09	4.22	9.45
Lowell	1.03	1.35	1.59	0.23	1.06	1.90	0.84	3.99	12.96
Lynn	1.09	1.17	1.43	0.41	1.09	1.87	0.66	4.02	13.35
Memphis	0.72	1.57	1.49	0.35	1.18	2.00	0.55	3.39	12.68
Nashville	0.66	1.23	1.27	0.24	1.04	1.65	0.44	3.40	10.82
New Bedford	1.24	1.69	1.26	0.52	1.60	2.34	0.68	4.41	15.32
Paterson	0.65	1.44	1.66	0.17	0.77	0.97	0.52	4.38	11.35
Richmond	1.34	1.49	1.45	0.40	1.75	2.97	0.64	2.89	13.77
San Antonio	0.60	1.22	1.31	0.17	1.06	1.70	0.22	3.31	10.03
Scranton	0.86	0.88	0.94	0.07	1.01	1.02	.....	4.49	9.75
Springfield	0.88	1.71	2.63	0.42	1.44	3.39	0.53	7.07	19.94

* U. S. Bureau of Census, 1913, Bulletin No. 126, Table 2, Page 44.

TABLE LXIX

Per Cent of Total Governmental Cost Payments Devoted to Various City Departments 1913*.

CITIES	Gen'l Gov't	Police	Fire	Health	Sanitation	Highways	Charities	Schools
Albany	12.3	13.3	14.1	1.4	7.6	9.3	3.0	27.9
Birmingham	7.6	12.3	16.7	1.6	10.4	11.8	2.6	32.5
Bridgeport	9.9	10.9	15.2	1.1	7.9	14.1	7.4	26.4
Cambridge	6.5	9.9	7.7	3.0	11.1	17.8	3.7	29.7
Dayton	7.6	10.1	9.9	1.5	10.5	18.4	4.1	33.4
Des Moines	6.1	6.1	15.0	0.8	4.6	9.7	0.3	46.5
Fall River	5.3	11.3	11.1	3.3	7.2	15.4	7.8	33.0
Grand Rapids	9.4	9.4	14.0	3.0	6.8	6.5	1.9	42.3
Kansas City	8.9	9.5	15.0	1.0	4.9	8.0	1.0	44.6
Lowell	7.9	10.4	12.2	1.8	8.2	14.6	6.5	30.7
Lynn	8.2	8.8	10.7	3.1	8.2	14.0	4.9	30.1
Memphis	5.7	12.4	11.7	2.8	9.3	15.8	4.3	26.7
Nashville	6.1	11.3	11.7	2.2	9.6	15.2	4.0	31.5
New Bedford	8.1	11.0	8.2	3.4	10.4	15.3	4.4	28.8
Paterson	5.8	12.7	14.6	1.5	6.8	8.5	4.6	38.6
Richmond	9.7	10.8	10.6	2.9	12.7	21.6	4.7	21.0
San Antonio	5.9	12.2	13.0	1.7	10.6	17.0	2.2	33.0
Scranton	8.8	9.0	9.6	0.7	10.4	10.4	....	46.0
Springfield	4.4	8.6	13.2	2.1	7.2	17.0	2.7	35.4

* U. S. Bureau of Census 1913, Bulletin No. 126, Table 2.

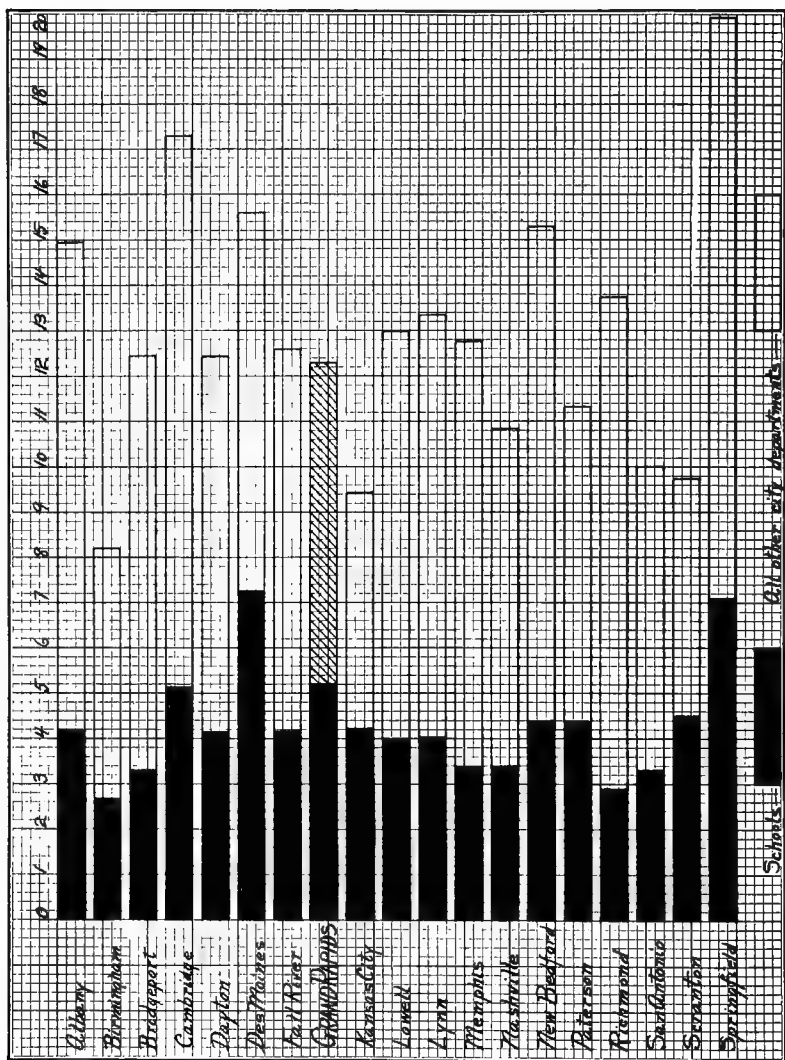


DIAGRAM LXXXII—Expenditures per inhabitant for all city departments and for schools.

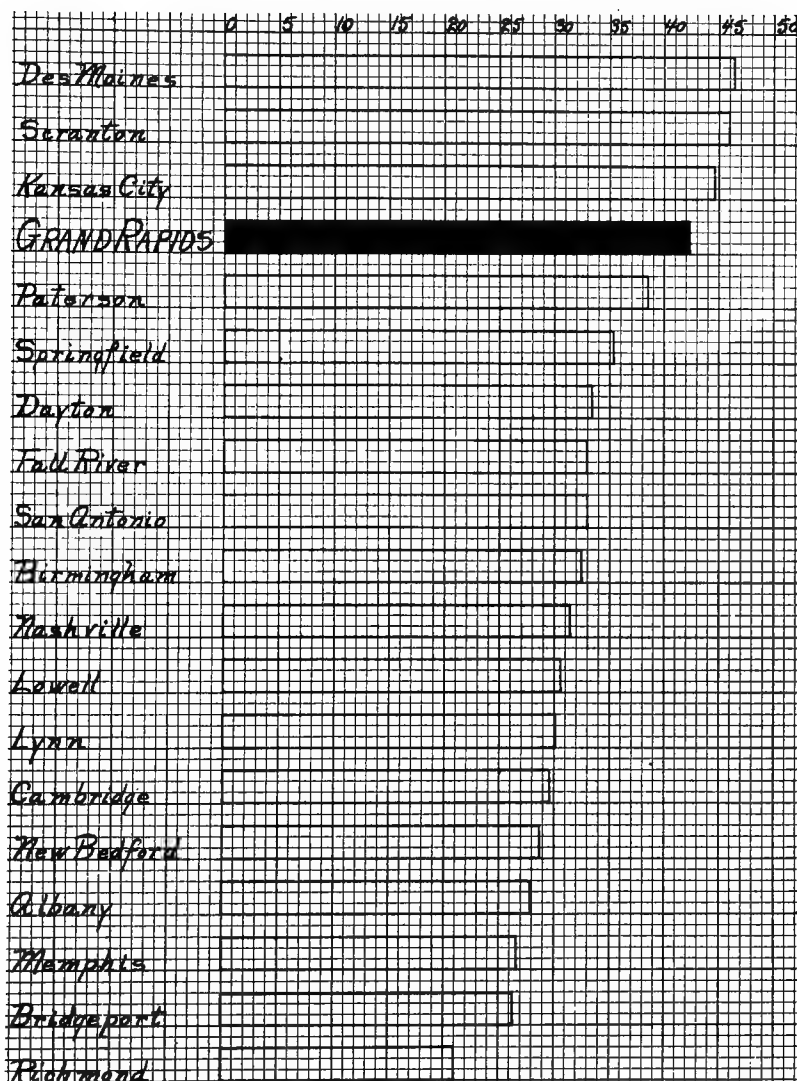


DIAGRAM LXXXII—Per cent of total cost payments to schools—19 cities.

TABLE LXX

Rank in Per Cent of Total Governmental Cost Payments Devoted to Various City Departments 1913.

CITIES	Gen'l	Gov't	Police	Fire	Health	Sanitation	High-ways	Charities	Schools
Albany	1		1	6	15	13	16	12	16
Birmingham	10 or 11		4	1	12	6	13	14	10
Bridgeport	2		9	2	16	12	11	2	18
Cambridge	12		13	19	4 or 5	2	3	11	14
Dayton	10 or 11		12	16	13 or 14	4	2	9	7
Des Moines	13 or 14		19	3 or 4	18	19	15	18	1
Ell River	18		6 or 7	13	2	14 or 15	7	1	8 or 9
Grand Rapids	4		15	7	4 or 5	16 or 17	19	16	4
Kansas City	5		14	3 or 4	17	18	18	17	3
Lowell	9		11	10	10	10 or 11	10	3	12
Lynn	7		17	14	3	10 or 11	12	4	13
Memphis	17		3	11 or 12	7	9	6	8	17
Nashville	13 or 14		6 or 7	11 or 12	8	8	9	10	11
New Bedford	8		8	18	1	6	8	7	15
Paterson	16		2	5	13 or 14	16 or 17	17	6	5
Richmond	3		10	15	6	1	1	5	19
San Antonio	15		5	9	11	3	4 or 5	15	8 or 9
Scranton	6		16	17	19	6	14	19	2
Springfield	19		18	8	9	14 or 15	4 or 5	13	6

expenditures expressed in terms of its capacity to support schools, but it is devoting a proportionally large part of its municipal expenditures to the public schools.

3. How the Board of Education Spends its Money

(a) **The Distribution of School Moneys Between Current Expense and Permanent Improvements.** The principal division of school expenditures is that between current expense and outlay for permanent improvements. Table LXXI and Diagram LXXXIV show the growth and distribution of the Board's expenditures. In fourteen years the Board's total expenditures have increased nearly 300 per cent. In fact, in ten years they have tripled. From 1902-1905 it spent annually approximately \$400,000. In 1914-1915 it spent over \$1,000,000 and \$1,400,000 respectively. During the same time, the average number of pupils belonging to the school system increased only 1990 or 14.2 per cent. An analysis of the total expenditures reveals where the largest portions of the expenditures went, namely into permanent improvements. The analysis to be made later will show that for years previous to 1905 and 1906, relatively little was done in adding to the permanent plant of the Grand Rapids school system. From 1893 to 1905 only three new grammar school buildings were built (at a cost of \$130,000) and no high schools. In the same time four four-room additions were made to elementary schools. It was a period of relatively little attention to the development of the school plant.

With the reorganization of the Board of Education in 1905 (a Board of nine members elected at large, replacing a political Board of twenty-four "ward" members) there came a change in

TABLE LXXI

Amount spent for all Current Expenditures and for Permanent Improvements during years 1902-1915 inclusive.*

YEAR	Total Current Expenses	Total Spent for Permanent Improvements	Total Ex- penditure for All School Purposes	Average No. Pupils Belong- ing to Schools
1902	\$349,885.09	\$35,801.68	\$ 385,686.77	13,321
1903	393,984.85	35,347.18	429,332.03	13,126
1904	416,289.46	17,236.83	433,526.29	12,992
1905	409,785.89	24,700.00	434,485.89	12,902
1906	458,055.73	89,222.86	547,278.59	13,047
1907	435,570.26	88,603.60	524,173.86	13,139
1908	514,784.37	119,804.43	634,588.80	13,374
1909	550,128.16	250,210.53	800,338.69	13,493
1910	561,457.05	404,466.14	965,923.19	13,580
1911	575,478.78	245,751.97	821,230.75	13,771
1912	662,940.28	157,159.14	820,099.42	14,112
1913	769,440.11	89,880.59	859,320.70	14,730
1914	791,239.91	249,594.73	1,040,834.64	14,865
1915	884,008.22	545,771.48	1,429,779.70	15,311

* Data from Annual Reports of the Board of Education.

the manner of handling school business. A new educational and business organization was installed, and a systematic study undertaken of the needs of the school plant. During 1907 and 1908 several necessary four-room additions were made to grammar schools, and a plan for high-school development worked out. It was quite clear that a complete overhauling of the physical equipment of the plant was necessary. This resulted in an expenditure of over \$400,000 for new buildings, \$302,000 of this being for the Central and Union High Schools, the remainder for new elementary schools. Careful reading of the reports of committees, of the business manager and of the proceedings of the Board, leads to the conclusion that the Board of Education, through its business department, has administered the development of the school plant in a far-sighted manner. Careful studies made of particular buildings and of the life of school buildings in the city of Grand Rapids in general, culminated in a definite building policy of the Board in 1912 and 1913. In that year a scheme of five-year development of the school plant was planned, and \$1,011,000 in bonds were voted by the Board of Education. This policy of replacement and extension was hampered by an adverse vote of the people on referendum in 1913. Notwithstanding this, the Common Council approved bonds to the amount of \$557,000 in 1913, from which the South High School and new elementary schools were built in the past two years. The delay in approval of the bond issue, however, accounts for the low point in the building curve in the above diagram. The upward trend of the permanent improvements curve in 1914 and 1915 is explained by the completion of the high schools and of several new elementary schools. (A more

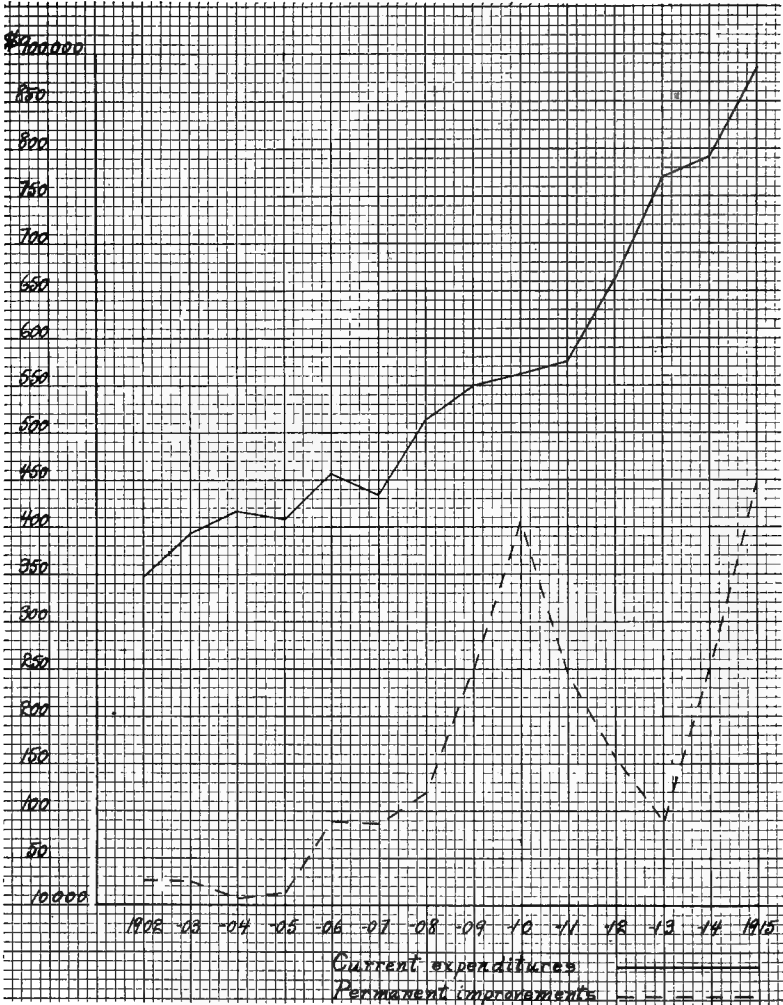


DIAGRAM LXXXIV—Amount spent for current expenses and permanent improvements 1902-1915.

detailed analysis of the bonding policy of the Board of Education will be discussed later in this report.)

Thus, careful analysis of the financial aspects of the building situation in the city shows that the great increase in the absolute and relative amount of money spent for permanent improvements is but a natural outcome of a long period of neglect of the school plant. The city should face squarely the problem of supporting the Board of Education in its present attempt to bring the elementary schools of the city up to a high standard. The high-school situation has been very much improved within the last three years. It seems clear that more attention should now be given to the development of the elementary-school plant. (The question of how best to raise money for building purposes and the efficiency of the architectural and construction department of the business organization are discussed later in the report.)

In the same interval from 1902 to 1915, the total current expense of the Board has increased fairly regularly from year to year. A comparison has been made of the growth in the average number of pupils in the fourteen years 1902 to 1915 inclusive, with the increase in current annual expenditure. During the time that there has been but relatively little increase in the number of pupils in the public schools (as shown by the Annual Reports of the Board of Education) there has been a remarkable increase in current expenditures. Table LXXII and Diagram LXXXV analyze the larger items making up the total current expenditures. Roughly 70 per cent of a city's school expenditures go into the salaries of teachers. The increase in current expenditures is shown by Table LXXII to be found very largely in this item: the city spent nearly \$300,000 more in 1915 for teachers' salaries than it did in 1905. In the same interval the number of teachers in the system increased from 422 to 611,

TABLE LXXII

Total Expenditures for Salaries of Teachers, Janitors, and Administration, and Average Salary Paid Per Teacher. For 1905 to 1915 inclusive.*

YEAR	No. of Teachers	SALARIES PAID			Average Salary Paid Per Teacher
		Teachers	Janitors	Administration	
1905	422	\$285,476	\$30,074	\$11,914	\$676
1906	425	293,824	29,687	10,390	691
1907	452	323,185	33,073	11,490	715
1908	483	376,981	32,563	11,874	780
1909	482	394,822	33,215	12,263	819
1910	488	402,355	32,768	12,871	824
1911	505	413,263	40,407	13,884	818
1912	540	450,884	46,031	14,325	835
1913	558	483,961	45,963	15,417	867
1914	593	516,832	46,712	16,523	871
1915	611	548,795	49,459	18,510	* 898

* Data from Annual Reports of Board of Education.

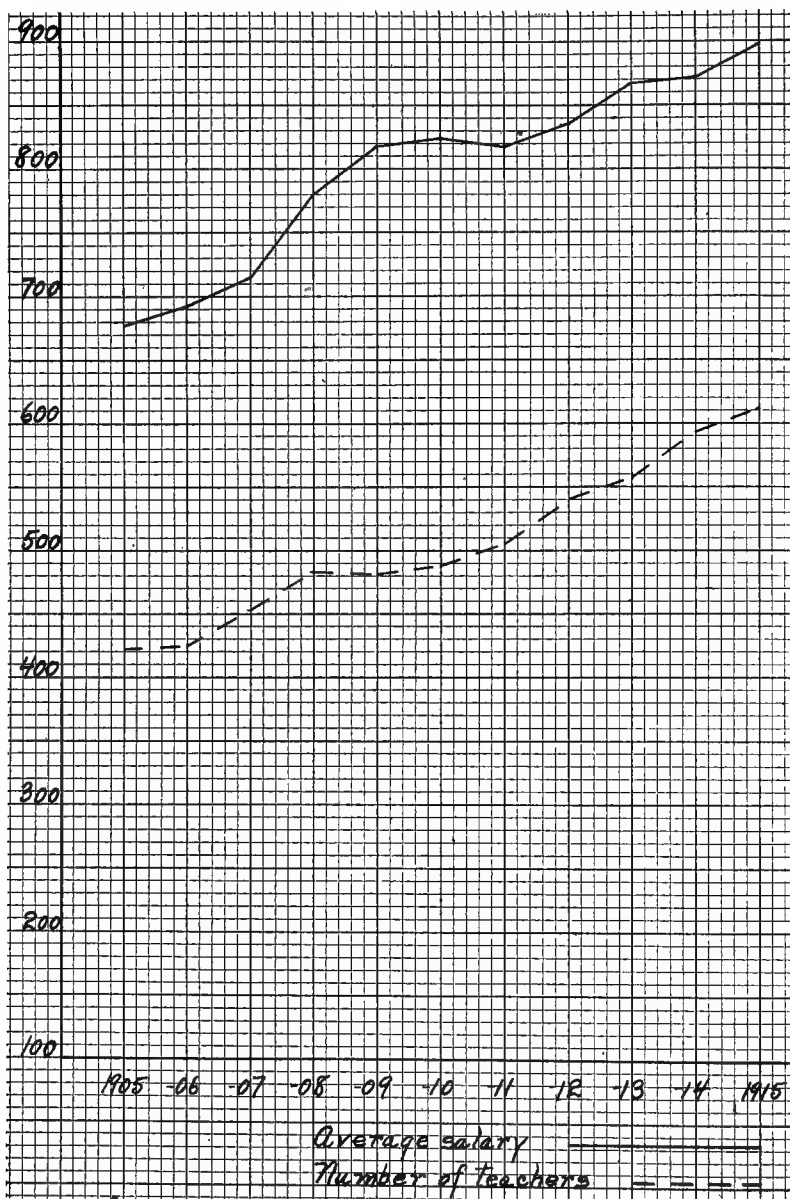


DIAGRAM LXXXV—Increase in number of teachers and in average salary paid to teachers, 1905-1915.

an increase of about 30 per cent. This has meant a constantly decreasing size of class. At the same time, the Board has consistently raised teachers' salaries. In 1905 it spent for this purpose \$676 per teacher; in 1915, \$898 per teacher. (A detailed discussion of salary schedules will be given later in this report.) While the total amount spent for teachers' salaries has practically doubled in ten years, janitorial expense and administrative salaries have increased about two-thirds. In the meantime, building and ground maintenance has nearly doubled, \$23,365 to \$51,656; fuel expense has more than tripled, \$8,607 to \$25,444; the interest on bonds, \$12,451 to \$36,398, supplies, \$11,530 to \$33,752 have each tripled.

This study of the classification of total disbursements leads to the conclusion that the city of Grand Rapids, through its Board of Education and Common Council has been very liberal in its support of schools. Not only has it entered upon a definite policy of developing the school plant, but it is also assuming an attitude of being willing to pay more for each aspect of educational service.

(b) The Relative Extent to which Grand Rapids Supports Different Kinds of Educational Service

1. How does Grand Rapids Distribute Its Current Expenditures?

Granted that the Board of Education has entered upon a policy of development aimed at correcting the condition brought on previous to the reorganization in 1905, is it developing all phases of educational work, or is it emphasizing one at the expense of others?

The business manager, appointed by the Board in 1906, in designing a system of fund accounting, classified accounts as 1, educational (fund numbers 1-9 inclusive); 2, business (funds numbers 10 and above). The business department at the same time was created a co-ordinate department of the general system. The business manager reported to the Board directly, not to the Superintendent of Schools. It is pertinent to the purpose of this inquiry to study the expenditures of the Board when classified in accordance with this larger basis of division employed since its establishment in the business manager's office.

a. **Educational vs. Business Expenditures of the Board.** Tables LXXIII and LXXIV show the status of the two divisions. Table LXXIII shows the amounts spent for all educational purposes, and for all business purposes during the past five years, and the per cent of the total current expenditures de-

voted to each. The following items are included under the above named purposes:

Educational purposes (salaries and expense).

1. Salaries and expenses of teachers, principals, and their clerks; of supervisors and their clerks;

2. School supplies, school books, manual training supplies and equipment;

3. Instructional expense for special schools;

4. Other miscellaneous instructional expense.

Business purposes—salaries and expense of the business department.

1. Expenses of the Board of Education;

2. Maintenance of buildings and grounds;

3. Salaries and supplies for janitors;

4. Fuel, light, power and water;

5. Miscellaneous business expense.

TABLE LXXIII

Distribution of Educational and Business Expenditures of the Board of Education, 1911-1915 inclusive.*

YEAR	Educational Expenditure	Business Expenditure	Total Current Expenditure	Per Cent of Total Devoted to Educational Purposes	Business Purposes
1911	\$452,152.07	\$ 96,021.77	\$548,173.84	82.48	17.52
1912	498,426.71	136,260.91	634,687.62	78.51	21.49
1913	532,508.36	130,897.11	663,405.47	80.27	19.72
1914	563,206.65	118,442.37	681,649.02	82.62	17.37
1915	602,944.20	153,253.26	756,197.46	79.75	20.25

* Data compiled from the Annual Reports of the Board of Education.

The table shows a certain consistency in the policy of the Board in its distribution of expense between these two larger types of activities. Approximately four-fifths of the Board's money has gone to educational purposes, two-fifths to business purposes. Is this proportion rightly balanced? Is the business department receiving more or less than it should? Has the Board of Education, in establishing a policy of physical development, and in reorganizing the business end of school administration, emphasized unduly the activities of the business department at the expense of the educational department?

The best method available for answering these questions is to compare what the city is doing with the record of other cities in its class. Table LXXIV does this by giving the absolute amount spent per pupil in average daily attendance for these two purposes, together with the per cent of the total devoted to each. It should be noted that a city's expenditures for any school purpose should be analyzed in this two-fold way, 1. by determining its absolute per capita expenditures; 2. by comput-

ing the per cent of its expenditures devoted to the particular phase of school administration in question. Both methods must be used to give an adequate comprehension of the situation. Table LXXIV shows that Grand Rapids is spending more money

TABLE LXXIV

Total and Per Capita Expenditures for Educational and Business Purposes.*

CITY	Total Expenditure for:		Expenditure Per Pupil in Average Daily Attendance for:		Rank in Expenditure Per Pupil Average Daily Attendance for:	
	Educational Purposes	Business Purposes	Educational Purposes	Business Purposes	Educational Purposes	Business Purposes
Albany	387,781	92,120	35.85	8.51	5	6
Birmingham	453,073	71,721	23.01	3.64	19	19
Bridgeport	400,184	90,950	24.95	5.67	16	14
Cambridge	539,066	93,559	37.11	6.44	4	13
Dayton	466,131	130,140	29.86	8.34	11	7
Des Moines	624,827	144,396	40.20	9.29	3	4
Fall River	497,634	122,344	35.05	8.61	6	5
GRAND RAPIDS	598,771	153,986	40.65	10.45	2	3
Kansas City	382,624	132,103	30.57	10.55	9	2
Lowell	322,425	87,131	29.14	7.60	12	9
Lynn	340,413	85,115	27.61	6.91	13	11
Memphis	463,011	81,728	29.95	5.29	10	15
Nashville	374,181	59,034	24.22	3.82	17	17
New Bedford	399,308	81,712	32.12	6.59	8	12
Paterson	519,833	88,366	26.95	4.58	14	16
Richmond	512,294	83,624	23.17	3.78	18	18
San Antonio	393,060	85,814	34.46	7.52	7	10
Scranton	526,037	156,591	26.63	7.93	15	8
Springfield, Mass.	706,367	165,480	45.42	10.64	1	1

* Data from Annual Report, United States Bureau of Education, 1915, Vol. II.

for educational purposes on each child in average daily attendance than all but one of the 18 other cities in the list. Springfield, Massachusetts exceeds it in per capita expenditures by nearly \$5.00, but it should be remembered that Springfield has a capacity for supporting schools that is considerably greater. At the same time, Grand Rapids ranks third in 19 cities in its per capita expenditures for business purposes. This part of the table shows, then, that Grand Rapids is not only liberal in its expenditures for schools, but that it is comparatively liberal in its expenditures for all phases of school work. It does not, however, reveal the exact way in which the Board is dividing its financial interests. Table LXXV and Diagram LXXXVI also show that whereas Grand Rapids ranks fifth in 19 cities in the per cent of its current expenditures that it devotes to business purposes, it ranks fifteenth in the per cent devoted to educational purposes. Where it is spending 20.46 per cent of its school money for business purposes, Kansas City is giving 25.66 per cent, and Nashville is devoting only 13.63 per cent. These differences, although small absolutely, are large relatively. It is true that we have no adequate basis for determining what is the best percental distribution of school money. According to common practice among American

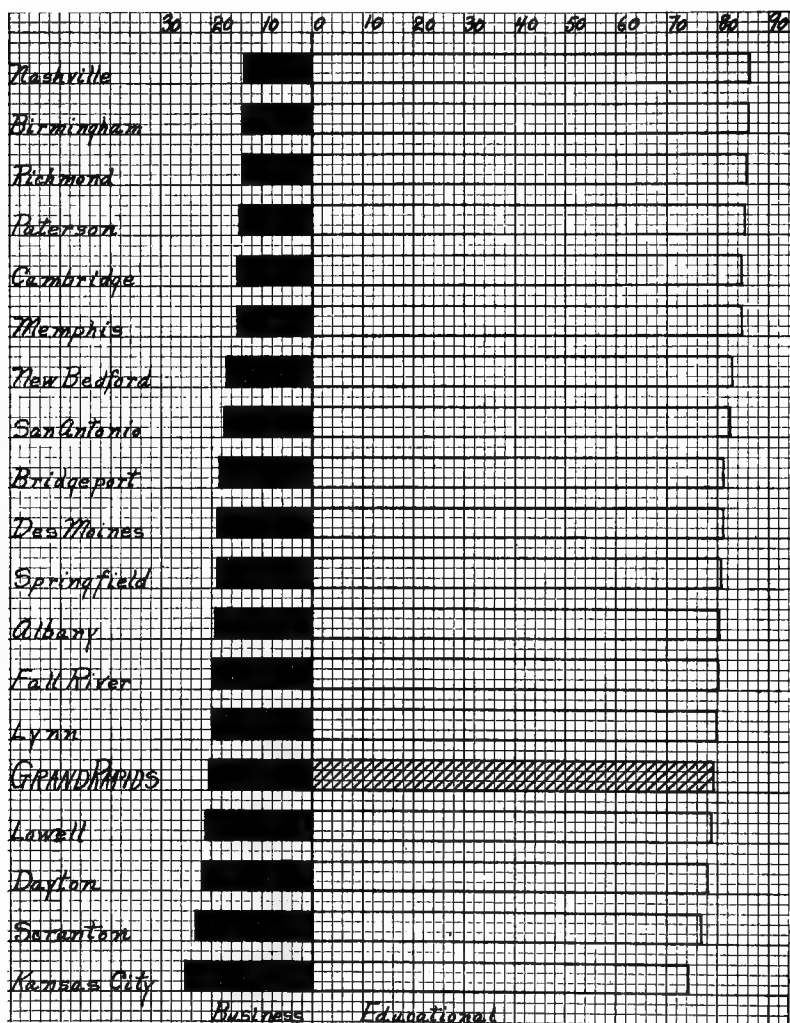


DIAGRAM LXXXVI—Per cent of current expenditures for educational and business purposes,

cities, Grand Rapids is spending slightly more on its business department than most other cities. However, the above analysis of the position of Grand Rapids in the group of cities of its class in the per capita expenditure for both educational and business purposes will at least temper the conclusion that Grand Rapids ought to spend a larger proportion of its income on the educational phases of its school work.

TABLE LXXV

Per Cent of Total Current Expenditures devoted to Educational and Business Purposes.

CITY	Educational Purposes	Business Purposes	Rank of Total Expenditures Educational Purposes	Per Cent of Expenditures Devoted to: Business Purposes
Albany	80.81	19.19	12	8
Birmingham	86.35	13.64	2	18
Bridgeport	81.41	18.59	9	11
Cambridge	85.21	14.79	5	15
Dayton	78.17	21.83	17	3
Des Moines	81.23	18.77	10	10
Fall River	80.27	19.73	13	7
GRAND RAPIDS	79.54	20.46	15	5
Kansas City	74.34	25.66	19	1
Lowell	78.77	21.22	16	4
Lynn	80.00	20.00	14	6
Memphis	85.00	15.00	6	14
Nashville	86.37	13.63	1	19
New Bedford	83.02	16.98	7	13
Paterson	85.47	14.53	4	16
Richmond	85.97	14.03	3	17
San Antonio	82.08	17.92	8	12
Scranton	77.06	22.94	18	2
Springfield	81.02	18.98	11	9

The distribution of total expenditures alone, however, does not solve the problem entirely. It has been recognized for some time that the Board of Education has been forced to pay a large amount of attention to the physical and business aspects of the schools. The necessity of this was noted above in commenting upon the way in which the Board distributes its money between current expense and capital outlay. A careful reading of the proceedings and Annual Reports of the Board of Education, supplemented by interviews with members of the Board and the business and educational departments, leads to the belief that there has been a tendency in Grand Rapids to emphasize the business aspects of school development. A comparison of the salaries paid for business administration and for educational administration 1910-1911 and 1915-1916 inclusive shows the following totals:**

** From data supplied by Business Manager's office.

	Business Administration*	Educational Administration†
1910-11	11,888	8,284
1911-12	11,521	8,692
1912-13	12,364	9,597
1913-14	12,944	10,477
1914-15	14,885	12,090
1915-16	17,548	13,321

* Includes salaries of the business manager and clerks in his office; superintendent of buildings, school architect, the director of the census and his clerks; the supply clerk and assistants.

† Includes salaries of superintendent, assistant superintendent, office assistants, truant officers, head of attendance department and assistants.

A consideration of the above analysis of administrative expense emphasizes the belief that the administrative phases of a business nature have been the more completely developed. Due to the undeveloped condition of this branch of the administration in earlier days, it must be said that most of the addition to the business staff has been quite necessary. A real supply department has recently been established that is handling its work in a very creditable manner. The repair and janitorial departments have been combined under one administrative officer, a superintendent of buildings and grounds. This step was in line with the properly increasing centralization and co-ordination of school administration. The Board has, within a few years, established a department of school architecture to put the designing and construction of its new buildings on a purely professional basis. It can be shown that the expense in this connection is clearly justifiable. A recent innovation is the creating of a permanent bureau of census and statistics. Through a misconception of the proper function of such a department, it is being administered by the business manager, and is included in the above table with the business expense. The type of work done to date has been such as to contribute very largely to the business outcomes and not to the furtherance of specific phases of purely educational practice. A proposed reorganization of this department is discussed later.

Careful consideration of all phases of the distribution of the Board's expenditures leads to the conclusion that while it has emphasized somewhat unduly the business aspects of the schools, it has been justified in doing so by the undeveloped state of the organization ten years ago. At the same time, it must be stressed that the city is a leader in its liberality in each of the larger phases of school expenditure.

2. The Board's Expenditures Classified in Terms of Service Rendered

a. **The Larger Aspects.** Tables LXXVI and LXXVII analyze still more in detail the distribution of the Board's current expenditures, excluding outlay. They do so in terms of education-

al service rendered of the following specific types: 1. Administration; 2. Supervision and Instruction; 3. Operation of the Plant; 4. Maintenance of the plant. Tables LXXVI and LXXVII show for 19 cities the total expenditures for each of these types of service, and the *per cent* of the total current expenditures devoted to each item, with the rank of the cities in the per cent devoted to each. The table shows that Grand Rapids is in the top third of the cities in the proportion of its expenditures for administration and maintenance of the plant, and considerably below the average in the proportion of its expenditures devoted to *supervision* and *instruction* and operation of the plant. This is largely accounted for in the case of the first item by the above discussion. That the city has been devoting such a large proportion of its income to maintenance is to be expected in view of the condition of the school plant. With the constantly increasing replacement of old buildings, the unusual percentage of current income devoted to this item should be reduced. It must be

TABLE LXXVI

Distribution of Total Current Expenditures for various kinds of Educational Service, 1915.*

CITY	Administration	Supervision and Instruction	Operation of Plant	Maintenance of Plant	TOTAL
Albany	14,107	381,366	69,050	15,378	479,901
Birmingham	14,021	444,076	56,544	10,153	524,794
Bridgeport	11,252	395,022	69,775	15,185	491,234
Cambridge	25,733	522,150	77,901	6,452	632,236
Dayton	17,018	457,689	60,699	60,805	596,211
Des Moines	18,921	612,557	111,512	23,432	766,422
Fall River	19,255	483,393	84,560	31,803	619,011
GRAND RAPIDS	29,970	582,221	87,536	50,162	749,889
Kansas City	35,623	373,341	63,611	41,107	513,682
Lowell	12,342	314,711	78,803	3,484	409,340
Lynn	20,728	230,439	58,289	15,322	324,778
Memphis	22,623	452,796	52,402	16,918	544,739
Nashville	16,931	366,246	34,977	15,061	433,215
New Bedford	17,664	384,805	68,720	8,776	479,965
Paterson	15,586	516,153	63,996	12,464	608,199
Richmond	14,796	506,454	53,593	21,435	596,283
San Antonio	17,564	388,290	40,385	32,635	478,874
Scranton	32,741	516,994	88,447	44,446	682,628
Springfield	29,923	681,762	113,634	45,717	871,036

* Data from 1915 Report of the U. S. Commissioner of Education, Vol. II.

noted also that the business department has recently adopted the policy of building equipment and furniture, and it is probable that a fairly large portion of the 1915 maintenance is due to the inclusion of all expenses of the shop force whether engaged on repairs or on the building of equipment.

Tables LXXVIII and LXXIX show that in actual per capita expenditure, Grand Rapids is a leader in the degree to which it is supporting each specific phase of school work. In administration, supervision and instruction, and in total current expendi-

TABLE LXXVII

Per Cent of Current Expenditures Devoted to Various Kinds of Educational Service 1915.*

CITY	Supervision and Instruction			Operation of Plant		Maintenance of Plant		RANKS			Maintenance of Plant	
	Administration Per Cent	Supervision and Instruction Per Cent	Operation of Plant Per Cent	Operation of Plant Per Cent	Maintenance of Plant Per Cent	Administration	Supervision and Instruction	Operation of Plant	Administration	Supervision and Instruction	Operation of Plant	Maintenance of Plant
Albany	2.93	79.48	14.39	14.39	3.21	13	11	4	13	11	11	11
Birmingham	2.67	84.70	10.68	10.68	1.92	15	3	13	15	3	16	16
Bridgeport	2.29	80.41	14.19	14.19	3.08	19	8	6	19	8	13	13
Cambridge	3.93	82.72	12.30	12.30	1.02	6	6	11	6	11	18	18
Dayton	2.85	76.79	10.15	10.15	10.17	14	16	15	14	15	1	1
Des Moines	2.47	79.93	14.50	14.50	3.07	18	10	3	18	10	14	14
Fall River	3.11	78.09	13.66	13.66	5.13	11	13	7	11	13	7	7
GRAND RAPIDS	3.96	77.64	11.69	11.69	6.70	5	14	12	5	14	4	4
Kansas City	6.94	72.69	12.36	12.36	8.01	1	18	10	1	18	2	2
Lowell	3.03	76.89	19.19	19.19	.86	12	15	1	12	15	19	19
Lynn	6.39	70.92	17.95	17.95	4.73	2	19	2	2	19	8	8
Memphis	4.15	83.12	9.63	9.63	3.11	4	5	16	4	5	12	12
Nashville	3.91	84.54	8.07	8.07	3.48	7	4	19	7	4	10	10
New Bedford	3.68	80.17	14.34	14.34	1.82	8	9	5	8	9	17	17
Paterson	2.56	84.87	10.52	10.52	2.04	16	2	14	16	2	15	15
Richmond	2.48	84.93	8.99	8.99	3.59	17	1	17	17	1	9	9
San Antonio	3.67	81.08	8.44	8.44	6.82	9	7	18	9	7	3	3
Scranton	4.79	75.75	12.90	12.90	6.52	3	17	9	3	17	5	5
Springfield	3.43	78.27	13.05	13.05	5.25	10	12	8	10	12	6	6

* Data from 1915 Report of the Commissioner of Education, Vol. II.

ture, it is spending more on each pupil in average daily attendance than all but one of the 19 cities in the list. Springfield, Mass., again ranks first. In operation and maintenance Grand Rapids is in the top third of the cities, ranking sixth and second respectively.

To what degree is Grand Rapids spending money on its school buildings and other permanent equipment in comparison with the cities of its class? Table LXXX and Diagram

TABLE LXXXVIII

Current Expenditures per pupil in Average Daily Attendance.
19 cities, 1915.*

CITY	Average Daily Attendance	Adminis- tration	Supervision and		Main- tenance	TOTAL
			Instruc- tion	Operation		
Albany	10,816	1.30	35.26	6.39	1.41	44.36
Birmingham	19,694	.72	22.65	2.88	.52	26.77
Bridgeport	16,034	.70	24.63	4.36	.95	30.64
Cambridge	14,524	1.77	35.92	5.37	.45	43.51
Dayton	15,608	1.09	29.32	3.89	3.90	38.20
Des Moines	15,543	1.22	39.45	7.19	1.50	49.36
Fall River	14,197	1.36	34.04	5.99	2.24	43.63
GRAND RAPIDS	14,730	2.03	39.52	5.94	3.41	50.90
Kansas City	12,515	2.85	29.83	5.08	3.29	41.05
Lowell	11,065	1.11	28.44	7.15	.31	37.01
Lynn	12,329	1.68	18.69	4.73	1.25	26.35
Memphis	15,462	1.46	29.28	3.40	1.09	35.23
Nashville	15,449	1.09	23.70	2.27	.98	28.04
New Bedford	12,431	1.41	30.96	5.54	.70	38.61
Paterson	19,284	.81	26.76	3.33	.65	31.55
Richmond	22,102	.67	22.91	2.42	.97	26.97
San Antonio	11,406	1.54	34.04	3.54	2.86	41.98
Scranton	19,755	1.67	26.17	4.48	2.25	34.57
Springfield	15,552	1.92	43.82	7.33	2.95	56.02

* Data from Annual Report of the U. S. Commissioner of Education, 1915, Vol. II.

TABLE LXXIX

Rank of 19 Cities in Current Expenditures per pupil in Average Daily Attendance, 1915.*

CITIES	Adminis- tration.	Supervision and		Main- tenance.	Total.
		Instruction	Operation.		
Albany	11	5	4	9	4
Birmingham	17	18	17	17	18
Bridgeport	18	15	12	14	15
Cambridge	4	4	8	18	6
Dayton	14 or 15	10	13	1	10
Des Moines	12	3	2	8	3
Fall River	10	6 or 7	5	7	5
GRAND RAPIDS	2	2	6	2	2
Kansas City	1	9	9	3	8
Lowell	13	12	3	19	11
Lynn	5	19	10	10	19
Memphis	8	11	15	11	12
Nashville	14 or 15	16	19	12	16
New Bedford	9	8	7	15	9
Paterson	16	13	16	16	14
Richmond	19	17	18	13	17
San Antonio	7	6 or 7	14	5	7
Scranton	6	14	11	6	13
Springfield	3	1	1	4	1

* Data from Annual Report of the U. S. Commissioner of Education, 1915, Vol. II.

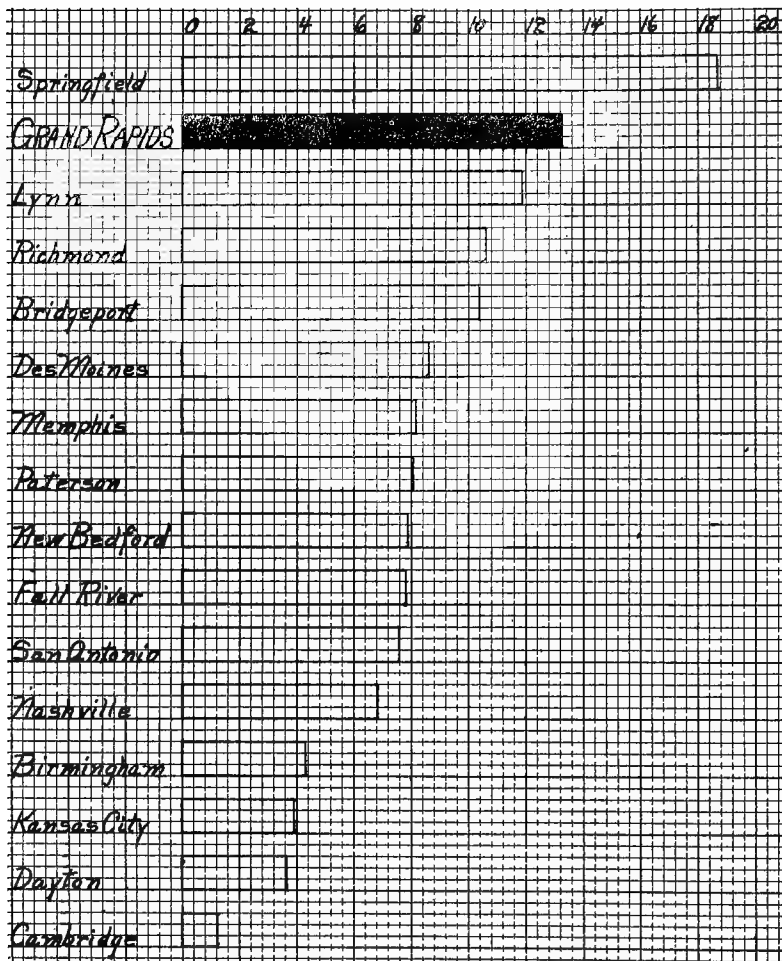


DIAGRAM LXXXVII—Expenditures per pupil in average daily attendance, for capital outlay (Average of years 1910-11 to 1914-15).

TABLE LXXX

Average Expenditures for Capital Outlay 1910-11 to 1914-15 inclusive. Total amount spent and amount spent per pupil in average daily attendance. 16 Cities.*

CITIES	Average Outlays 1911-1915	Daily Attendance	Expenditure Per Pupil in Average Daily Attendance:	
			Average Amount Spent	Rank
Springfield	257,767.00	13,835	18.63	1
GRAND RAPIDS	191,821.40	14,375	13.34	2
Lynn	130,589.60	10,934	11.85	3
Richmond	178,415.60	16,788	10.62†	4
Bridgeport	158,784.00	15,142	10.48†	5
Des Moines	126,630.20	14,596	8.67	6
Memphis	110,541.60	13,330	8.29	7
Paterson	144,545.80	17,839	8.10	8
New Bedford	89,558.20	11,478	7.80	9
Fall River	104,544.00	13,474	7.78	10
San Antonio	78,649.20	10,388	7.57	11
Nashville	97,035.00	14,121	6.87	12
Birmingham	77,639.40	17,691	4.39	13
Kansas City	46,471.00	11,921	3.89	14
Dayton	52,837.40	14,022	3.77	15
Cambridge	17,559.40	14,303	1.23	16

* Data from Annual Reports of the United States Commissioner of Education.

† Average Daily Attendance for 3 years.

‡ Average Daily Attendance for 4 years.

LXXXVII show for 16 cities the average expenditure for capital outlay during the five years 1910-11 to 1914-15 inclusive (both the total and average amount spent per pupil in average daily attendance). That the amount of money that a city spends for its school plant is an unstable item of expenditure is well shown by Table LXIII and Diagram LXXVI. It was decided that to average such expenditures during a course of say, five years, would smooth out any irregularities, and result in comparable figures. The table shows clearly that Grand Rapids, in terms of its capacity to do so, is spending more money per pupil in average daily attendance for permanent improvements than all but one of the cities in its class. The discussion that has been given of the recent attention to the physical plant may be thought to account for this high position. Averaging the expenditures for capital outlay, however, for the five years 1906-1910 inclusive, gives an average expenditure of roughly \$190,000—almost identical with that of the last five years, and an even higher per pupil expenditure. During the past ten years, therefore, the city clearly ranks at the head of the list. If the table had been prepared ten years ago, however, as an average expenditure for new plant for the years 1901-1905 inclusive, the average expenditure for all permanent improvements would have been less than \$25,000 a year, giving a per pupil cost of about \$2.00 a year, with a consequent ranking near the foot of the list of cities.

b. **Classification of Expenditures in Terms of Specific Types of Service Rendered.** Tables LXXXI and LXXXII compare the Board's expenditures per pupil in average daily attendance for

various specific types of service rendered with those of 18 other cities. In all but one small item, that for salaries of supervisors, Grand Rapids ranks in the highest third of the 19 cities. In the amount spent per pupil in average daily attendance for salaries of teachers, it is exceeded only by Springfield. In the manner in which it provides educational supplies it must be regarded as unusually liberal. (The efficiency with which it administers these expenditures is another matter to be taken up in a later section.) In its expenditures for wages of janitors, for fuel, and for maintenance of the plant, it leads the other cities, ranking always in the upper third.

Tables LXXXI and LXXXII show that Grand Rapids ranks relatively low in the amount that it pays for salaries of supervisors, occupying the 11th or 12th place in the list of 19 cities. Attention should be called to the fact however that, expressed in absolute amount spent per pupil, the cities that rank 6th to 12th inclusive vary in their per capita expenditure by only 15 cents. It is possible to study the problem further by asking how many supervisors are employed per 1,000 pupils in the different cities. Obtaining the number of supervisors and the average daily attendance from Table 10 of the 1915 report of the United States Commissioner of Education, we find that Grand Rapids ranks third in the 19 cities, as shown by Table LXXXIII.

Since the city of Grand Rapids is spending less per child in average daily attendance and yet is supplying more supervisors per 1,000 pupils it must be paying a smaller salary. The 1913 report of the United States Bureau of Education gives data showing that the average expenditure per supervisor for salaries and expenses of supervisors in 1912-13 was \$937.00.

Adequate data are not available to give a precise comparison by grades of schools and by special subjects, of the cost of supervision. The best compilation of data on this subject is found in Bulletin No. 16, 1914, of the United States Bureau of Education, "Tangible Rewards of Teaching." Table 2 gives data on the average salary paid to various kinds of supervisors in 1912-13. Unfortunately it reports comparative data for only four cities, those on scattered types of supervisory work. They do not include Grand Rapids. The only remaining method of arriving at a comparison is to compare the average salary paid in Grand Rapids with the average paid in cities of the population class 50,000 to 100,000 or 100,000 to 250,000. It will be at least fair to Grand Rapids to compare the average salary paid to supervisors with that paid in cities of the former class. The list is given in Table LXXXIV.

One fact is clear: Grand Rapids pays a much lower salary

TABLE LXXXI

Expenditures per pupil in Average Daily Attendance for Various Specific Kinds of Service. 19 Cities, 1915.*

CITY	No. Pupils Average Daily Attendance	Board of Education and Business Office	Super- inten- dent's Office	Salaries of Principals	Salaries of Sup- ervisors	Salaries of Teachers	Sta- tionery and Supplies	Wages of Janitors	Fuel	Water, Light and Power	Main- tenance
Albany	10,816	.71	.59	4.47	.75	26.70	1.27	2.62	2.68	1.08	1.42
Birmingham	19,694	.25	.46	2.36	1.68	17.85	.46	1.60	.54	.74	.52
Bridgeport	16,034	.37	.32	2.49	.78	20.07	.80	1.83	2.53	†	.95
Cambridge	14,524	.63	1.14	3.58	.30	30.19	1.20	3.78	1.48	.10	.44
Dayton	15,608	.55	.53	2.83	.71	24.32	1.05	2.50	.95	.44	3.90
Des Moines	15,543	.58	.64	3.98	.85	28.91	4.72	4.46	1.51	1.22	1.51
Fall River	14,197	.42	.94	4.92	.59	26.61	1.12	4.27	1.44	.25	2.24
GRAND RAPIDS	14,730	.97	1.07	3.67	.63	32.80	2.10	3.36	1.73	.86	3.54
Kansas City	12,515	2.19	.66	2.03	.29	26.00	1.51	2.54	1.22	1.33	3.29
Lowell	11,065	.44	.68	4.84	.47	20.48	1.61	4.78	1.52	.81	.31
Lynn	12,329	.94	.75	2.23	.40	21.85	1.06	2.88	1.51	.33	1.25
Memphis	15,462	.80	.66	3.64	.61	24.58	.43	2.36	.64	.38	1.09
Nashville	15,449	.58	.51	2.26	.72	19.55	.35	1.46	.37	.43	.98
New Bedford	12,431	.34	1.08	3.17	.94	25.06	1.15	3.29	1.63	.59	.71
Paterson	19,284	.62	.19	3.00	.06	22.32	.69	2.24	.67	.40	.65
Richmond	22,102	.40	.26	2.26	.79	18.58	.67	1.51	.48	.43	.97
San Antonio	11,406	1.12	.42	3.95	.66	29.00	.46	2.60	.57	.37	2.86
Scranton	19,755	1.20	.46	2.98	.63	20.98	1.09	2.83	1.07	.57	2.25
Springfield	15,552	.44	1.48	2.68	.90	35.59	3.33	3.66	2.68	.90	2.93

* Data from Annual Report of the U. S. Commissioner of Education, Vol. II.

† Included under fuel.

TABLE LXXXII

Rank in Expenditure per Pupil in Average Daily Attendance for Various Specific Kinds of Service.
19 Cities, 1915.*

CITY	Board of Education and Business Office	Superintendent's Office	Salaries of Principals	Salaries of Supervisors	Salaries of Teachers	Stationery and Supplies	Wages of Janitors	Fuel	Water, Light and Power	Maintenance
Albany	7	11	3	7	6	6	10	1 or 2	3	9
Birmingham	19	14 or 15	15	1	19	16 or 17	17	17	7	17
Bridgeport	17	17	14	6	16	13	16	3	....	14
Cambridge	8	2	8	17	3	7	4	9	18	18
Dayton	12	12	12	9	11	12	13	13	10	1
Des Moines	10 or 11	10	4	4	5	1	2	7 or 8	2	8
Fall River	15	5	1	14	7	9	3	10	17	7
GRAND RAPIDS	4	4	6	11 or 12	2	3	6	4	5	2
Kansas City	1	8 or 9	19	18	8	5	12	11	1	3
Lowell	13 or 14	7	2	15	15	4	1	6	6	19
Lynn	5	6	18	16	13	11	8	7 or 8	16	10
Memphis	6	8 or 9	7	13	10	18	14	15	14	11
Nashville	10 or 11	13	16 or 17	8	17	19	19	19	11 or 12	12
New Bedford	18	3	9	2	9	8	7	5	8	15
Paterson	9	19	10	19	12	14	15	14	13	16
Richmond	16	18	16 or 17	5	18	15	18	18	11 or 12	13
San Antonio	3	16	5	10	4	16 or 17	11	16	15	5
Scranton	2	14 or 15	11	11 or 12	14	10	9	12	9	6
Springfield	13 or 14	1	13	3	1	2	5	1 or 2	4	4

* Data from Annual Report of the U. S. Commissioner of Education, Vol. II.

TABLE LXXXIII

Rank of 19 Cities in Number of Supervisors per 1,000 Pupils in Average Daily Attendance.

CITY	Number of Supervisors	Rank
New Bedford	11	1
Springfield	12	2
GRAND RAPIDS	10	3
Lowell	8	4
Bridgeport	13	5
Dayton	11	6
Paterson	13	7
Nashville	9	8
Scranton	11	9
San Antonio	6	10
Birmingham	10	11
Des Moines	7	12
Fall River	6	13 or 14
Memphis	7	13 or 14
Albany	4	15
Lynn	4	16
Kansas City	3	17
Richmond	4	18
Cambridge	2	19

TABLE LXXXIV

Minimum, Maximum and Average Salary Paid to Supervisors in Cities of 50,000 to 100,000.

Type of Supervision	Minimum Salary	Maximum Salary	Average Salary
Supervisor of:			
Intermediate Schools	\$800	\$1600	\$1045
Primary Schools	700	1800	1213
Kindergartens	700	1450	1130
Drawing	675	2000	1216
Music	600	2250	1280
Physical Training	900	2000	1354
Manual Training	550	2400	1509
Sewing	760	1400	1020
Cooking	625	1620	1159
Penmanship	900	1600	1214
Foreign Languages	990	1500	1245
Miscellaneous	900	2250	1567

(The salaries paid to supervisors in the next larger population class, 100,000 to 250,000, are much higher than the above salaries.)

to supervisors than the average in the cities of the population class 50,000 to 100,000. Analysis of the 1915-1916 payroll shows that the average salary paid to art supervisors is slightly lower than the average paid to art supervisors in 1912-13 in above group; that for music is slightly higher; that for physical education is considerably lower; the remainder of the salaries paid to supervisors average much below (1915-16) those paid on the average in other cities of the above class.

Even though specifically analyzed data, comparable at every step, are not available to answer the above questions, we are at least enabled to say that Grand Rapids is not paying as much for supervisors as are other cities of its class.

The discussion points to another outstanding fact which will

be elaborated in Chapter XV: the accounting methods of the business department are not planned so as to result in specific cost statements measured in terms of educational service rendered.

Using the criterion of prevalent practice as the standard, this analysis of the expenditures of the Board of Education leads to the conclusion that, with the exception of the supervisory phase, the Board in disbursing the city's school money has taken the position that all phases of school administration shall be thoroughly supported; that there is some evidence that the Board has been giving somewhat disproportionate emphasis to the development of the business side of the schools; that the Board has been endowing all other phases of the school work more liberally than most other cities of its class.

(c) The Relative Extent to Which Grand Rapids Supports Different Kinds of Schools

There are two principal ways to study the efficiency of a school system's financial administration. The first is to discover to what extent it supports different kinds of *educational service*, e. g. (1) classifying service as educational or business; (2) classifying service as administration, supervision and instruction, operation, and maintenance; (3) classifying service in terms of specific types of educational work, such as teachers' salaries, janitors' salaries, cost of fuel, etc. The second method is to discover to what relative extent the city is supporting *different kinds of schools*. We have found that, as judged by prevalent standards in cities of its class Grand Rapids spends a large amount of money on its school. It distributes this money fairly uniformly throughout different "service-departments" of school administration. No one of the more important branches can be said to be really neglected.

The question therefore arises: "How is it endowing different types of schools? Is this large expenditure of school money going in undue proportion to elementary or to secondary schools? How do the per capita expenditures for these two types of schools compare with those of other cities?"

The data of Table LXXXV and Diagram LXXXVIII and Tables LXXXVI and LXXXVII answer these questions. Table LXXXV shows the total current expenditure, the expenditure per pupil in average daily attendance and the rank of each of 17 cities in expenditure per pupil, for both elementary and secondary education. The interpretation of the table is clear: Grand Rapids is spending more per pupil in average daily attendance

TABLE LXXXV
Distribution of Current Expenditures for Elementary and Secondary Schools. 17 Cities, 1915.*

CITY	Expenditures for Elementary Schools	Expenditures for Secondary Schools	Total Current Expenditures	Expenditure Per Pupil in Average Daily Attendance: Elementary Schools	Expenditure Per Pupil in Average Daily Attendance: Secondary Schools	Rank of 17 Cities in Expenditure Per Pupil in Average Daily Attendance for: Elementary Schools	Rank of 17 Cities in Expenditure Per Pupil in Average Daily Attendance for: Secondary Schools
Albany	336,552	98,005	434,557	35.69	70.56	4	5
Birmingham	421,664	93,939	515,603	23.71	49.10	16	16
Bridgeport	393,876	51,712	445,588	26.01	54.95	14	12
Cambridge	445,442	146,196	591,638	36.35	63.58	3	9
Dayton	395,310	150,925	546,235	29.85	63.77	10	8
Des Moines	438,292	129,047	567,339	33.66	51.17	6	14
Fall River	450,407	113,572	563,979	34.92	87.32	5	3
GRAND RAPIDS	522,257	159,090	681,347	40.45	87.36	2	2
Lowell	303,145	66,180	369,325	31.37	47.27	9	17
Lynn	296,724	100,487	397,211	27.49	65.42	13	7
Nashville	344,516	74,331	418,847	24.37	56.57	15	11
New Bedford	371,563	81,168	452,731	32.46	84.02	7	4
Paterson	480,030	99,715	579,745	27.65	51.88	12	13
Richmond	447,853	111,197	559,050	22.24	56.73	17	10
San Antonio	324,122	63,477	387,599	31.51	50.66	8	15
Scranton	503,384	116,121	619,505	27.75	66.70	11	6
Springfield	593,500	213,735	807,235	44.64	94.74	1	1

* There were no data reported for Memphis and Kansas City, Kansas. Data from U. S. Commissioner's Report, 1915, Vol. II.

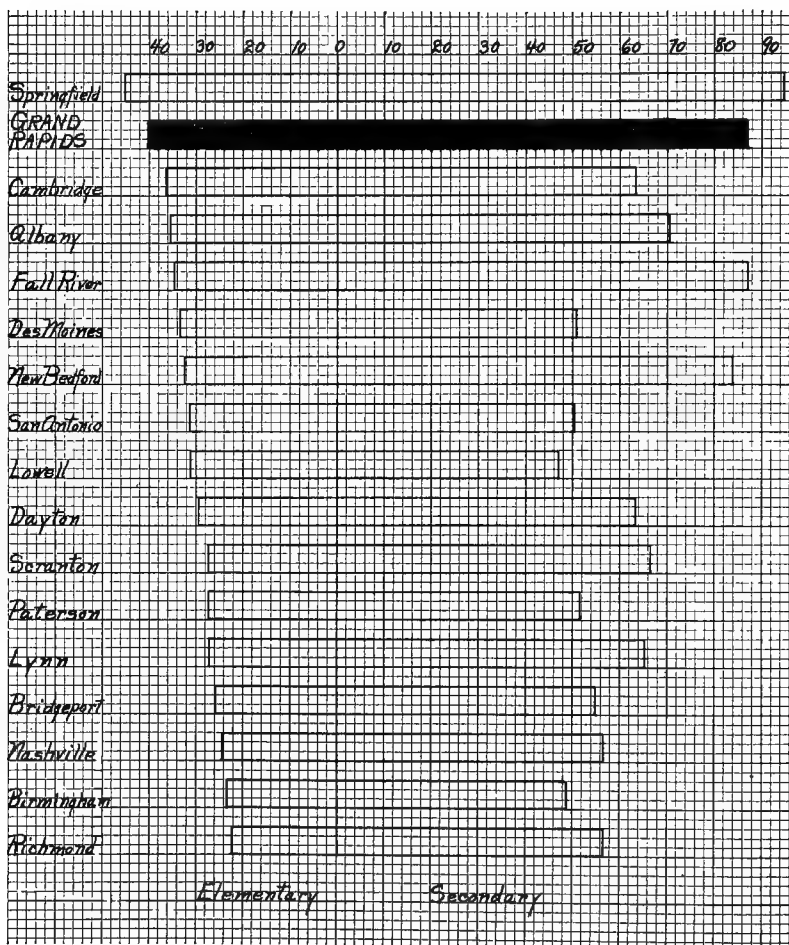


DIAGRAM LXXXVIII—Expenditures per pupil in average daily attendance for elementary and secondary education.

for both elementary and secondary schools than all but one of the 17 cities in the list. Measured in terms of its capacity to support schools the city is endowing elementary and secondary education more liberally than any other city of its class.

Table LXXXVI shows the per cent of the total expenditures devoted to elementary and secondary schools. Although ranking near the top of the list in its actual per pupil expenditure for both elementary and secondary schools, yet as judged by common practice of the cities in this group Grand Rapids is spending a rather large proportion of its school moneys for high

TABLE LXXXVI

Per Cent of Current Expenditures Devoted to Elementary and Secondary Schools; also Rank of 17 cities.*

CITY	Per Cent of Total Current Expenditures Devoted to:		Rank in Per Cent of Total Current Expenditures Devoted to:	
	Elementary Schools	Secondary Schools	Elementary Schools	Secondary Schools
Albany	77.44	22.56	11	7
Birmingham	81.78	18.22	7	11
Bridgeport	88.39	11.61	1	17
Cambridge	75.29	24.71	14	4
Dayton	72.37	27.63	17	1
Des Moines	77.25	22.75	12	6
Fall River	79.86	20.14	10	8
GRAND RAPIDS	76.65	23.35	13	5
Lowell	82.08	17.92	5	13
Lynn	74.72	25.28	15	3
Nashville	82.25	17.75	4	14
New Bedford	82.07	17.93	6	12
Paterson	82.82	17.18	3	15
Richmond	80.10	19.90	9	9
San Antonio	83.62	16.38	2	16
Scranton	81.26	18.73	8	10
Springfield	73.52	26.48	16	2

* There were no data reported for Memphis and Kansas City, Kansas. Data from U. S. Commissioner's Report, 1915, Vol. II.

schools. The Board has been emphasizing the development of high-school education not only in its building scheme but also in its operating and maintenance expenses. During the past five years the Board of Education has entered upon a definite policy of developing the junior high or intermediate schools. Since 1910-11 the Central Grammar School has been developed into a fairly complete Junior High School, and manual training shops with complete equipment have been added together with other special departments common to high-school education. The Union School has in the meantime been extended to include all years of the senior high school with a consequent enlargement of staff by extra, regular and special teachers. During the current year the new South High School has been opened with work extending to the tenth year. It is planned to extend the work offered in this school one grade each year until it will form a

TABLE LXXXVII

Distribution of School Officers and Teachers in Different Grades of Schools, 1910 to 1915 inclusive.*

YEAR	High Schools:		Elementary Schools:		Kindergarten:		Manual Training:		Special Teachers
	No. of Teachers	Principals and Asst. Principals	Principals	Regular Teachers	Teachers	Assistants	Super-visors or Directors	Auxiliary Teachers	
1910	64	4	34	295	10	1	35	16	4
1911	77	4	34	300	16	1	35	17½	6
1912	79	2½+	33½	314	21	1	35	20	2
1913	81	3½	34½	329	23	1	35	26	6
1914	92	3½	36¾	334¾	20	1	36	30	7
1915	114	4½	36½	349½	18½	1½	34½	31	8
									12
									14½

+ The Educational Department attempts to pro rate Principals' time.

TABLE LXXXVIII

Distribution of Enrollment and Number of Pupils per Teacher in Various Grades of Public Schools, 1910-1915 inclusive.

YEAR	Enrollment* in:		Number of Pupils per Teacher† in:		Kinder- garten
	High School	Grammar Grades	Auxiliary School	High School	
1909-10	1813	4793	68	22.2	32.4
1910-11	1844	4833	70	19.7	30.3
1911-12	1896	4894	96	19.8	35.8
1912-13	1979	5117	93	19.2	32.3
1913-14	2107	5318	150	19.5	27.6
1914-15	2325	5381	280	23.4	27.2
			...	33.9	35.0

* Data from Manuals of Board of Education.

† Based on Average Number Belonging.

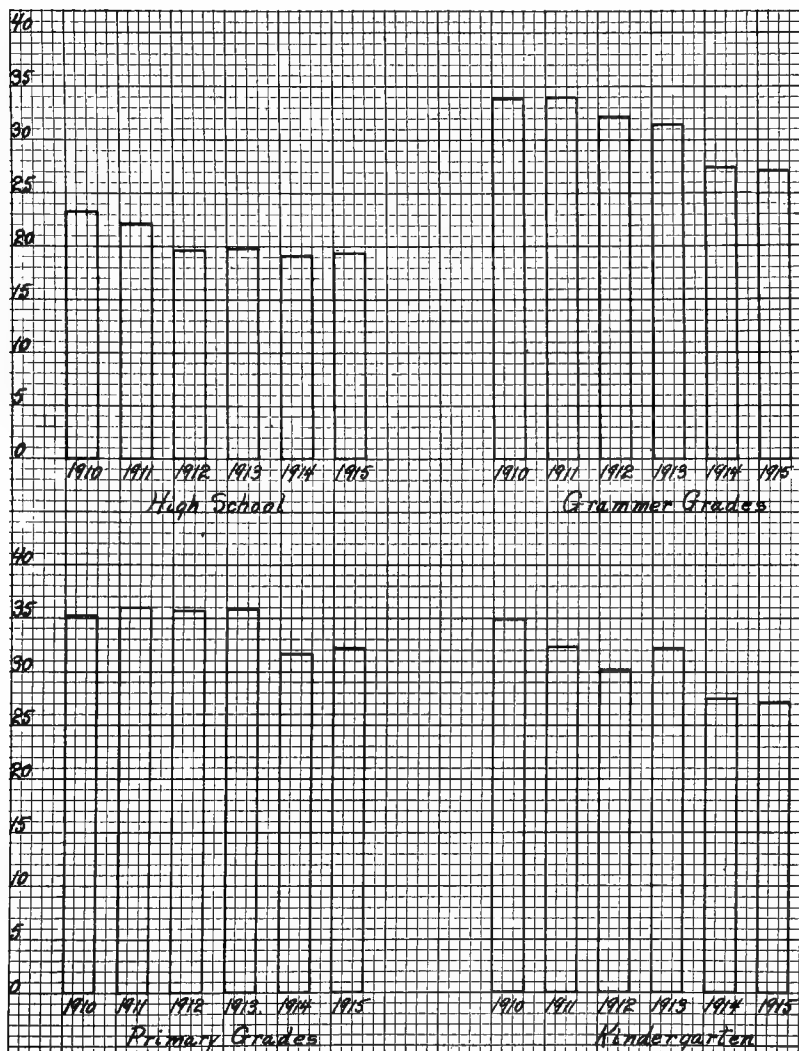


DIAGRAM LXXXIX—Number of pupils per teacher in high school, grammar grades, primary grades and kindergarten—1910-1915.

complete six-year high school. This rapid high-school development has meant four things: 1, a rapidly increasing secondary staff; 2, a parallel decrease in the size of class (the tendency in these directions is shown by Tables LXXXVII and LXXXVIII and Diagram LXXXIX); 3, a decided increase in the secondary payroll; 4, a parallel increase in the salary schedule.

During the six years from September 1909 to September 1915 the number of secondary teachers increased 78 per cent, while the high-school enrollment increased 28 per cent. In the same interval the number of elementary-school teachers increased 19 per cent with an accompanying increase in enrollment of three per cent. The building of a new high school invariably means a considerable addition to the secondary staff. With the new plant before them a Board of Education will sanction considerable increases in the number of new teachers. This is shown in the increase in September 1915, at which time 22 new teachers were added to the staff with the opening of the South High School. The table shows further that during the three years, 1909-10 to 1911-12, the size of the average secondary class decreased from 23.4 pupils per teacher (based on average number belonging) to 19.7; during the same time there was practically no drop in the size of elementary classes. From 1911-12 there was a marked reduction in the number of grammar pupils per teacher, size of class falling to 27.2 in 1914-15. At the same time the size of the primary and kindergarten classes decreased by 3.5 and 3.1 pupils respectively. It must be said on the whole however that there has not been as much recognition of the need for small classes in the lowest grades as there should have been to keep pace with the reduction in the upper ones.

At this point we need a comparison of the size of class in elementary and secondary schools in the various cities of the Grand Rapids group. Table LXXXIX and Diagram XC supply the data. Ranking the cities inversely to the size of class shows Grand Rapids to stand third in the list of 19, with a secondary class of 19.6. If the minimum size of class may be taken as synonymous with maximum opportunity for the development of efficient instruction, then Grand Rapids, among the cities of its class in the country, is offering an unusual opportunity for the raising of instructional efficiency in its high-school classes.

The figures given above for its elementary classes are taken from the 1915 Report of the United States Bureau of Education in order to make them as comparable as possible with the other cities of the list. It will be noted that the commissioner's figures state the average size of the elementary class in Grand Rapids as 27.4 and that this result does not check the figures in

Table LXXXVIII (as it gives the average size of all elementary classes). In that table (the data of which are taken directly from the printed manual of the Board of Education 1915-16) it is shown that the average size of the grammar class is substantially as stated in Table LXXXIX, 27.2. At the same time the average primary class is 32. Using this figure in Table LXXXIX shows Grand Rapids to rank 10th instead of 4th, which is below the average in the list of cities in its class. This confirms our view taken above that the Board of Education has been endowing secondary education somewhat at the expense of primary education. It is doubtless true that the size of the grammar grade classes is small enough to conduce to efficient teaching. It is less true of the size of primary classes.

It is pertinent to our inquiry to note that the primary enrollment in the public schools has not increased in six years. It has in fact decreased. The grammar grades continue to hold a slightly larger group each year; the high schools have shown a marked increase in enrolment in two years.

To an impartial observer the facts set forth above mean that the city does not have on its hands the problem of housing, equipping, and teaching very large increases in its elementary school population each year. It does not face, as Cleveland and many other cities do, the necessity of making large additions to the staff each year to take care of thousands or even hundreds of new elementary pupils. If we can judge from the curves of growth of the last fifteen years the increase in the grade population will undoubtedly be slow. At the same time, without doubt, there will be a constantly increasing annual addition to the enrollment in the high school. In this Grand Rapids is feeling the same larger demand for high-school education that is being felt by the other cities of the country. This all means that while the Board will probably need to make small additions to the secondary teaching staff each year, it will not need to make the very large additions that it has been forced to make recently.

In this connection Table CI, inserted later in the report, is of interest. The data on the average size of class in different departments of the Central High School for the first semester of 1915-16 indicate that Grand Rapids has a number of very small classes in the special subjects, e. g. domestic art, domestic science, drawing and art, although it has developed a large English department. Its classes in English are large (the average is 30) when judged by the common practice. With these exceptions the average size of class enrolled in different departments follows the average of all city high-school classes very closely.

TABLE LXXXIX

Number of Pupils in Average Daily Attendance per Teacher in Elementary and Secondary Schools,
19 Cities, 1915.*

	ELEMENTARY SCHOOLS:				SECONDARY SCHOOLS:			
	No. of Teachers Employed	Average Daily Attendance	No. Pupils Per Teacher	Rank	No. of Teachers Employed	Average Daily Attendance	No. Pupils Per Teacher	Rank
Albany	320	9,427	29.5	6	61	1389	22.8	10
Birmingham	571	17,781	31.1	8	91	1913	21.01	6
Bridgeport	388	15,093	38.9	18	34	941	27.7	18
Cambridge	386	12,255	32.0	10	106	2299	21.7	8
Dayton	433	13,242	30.6	7	93	2366	25.4	14
Des Moines	486	13,021	27.0	2	108	2522	23.35	11
Fall River	499	12,899	25.8	1	72	1298	18.03	2
GRAND RAPIDS	471	12,909	Prim. 32.3 Gram. 27.2	(10) 4	93	1821	19.6	3
Kansas City	337	11,026	32.7	12	71	1489	20.97	5
Lowell	264	9,665	36.6	15	48	1400	29.2	19
Lynn	285	10,793	37.8	17	62	1536	24.77	12
Memphis	450	14,070	31.3	9	66	1392	21.1	7
Nashville	314	14,135	44.7	19	49	1314	26.8	15
New Bedford	353	11,466	32.5	11	44	965	21.93	9
Paterson	462	17,362	37.6	16	70	1922	27.4	17
Richmond	599	20,142	33.6	14	73	1960	26.9	16
San Antonio	373	10,253	27.5	5	63	1253	19.9	4
Scranton	550	18,014	32.8	13	70	1741	24.9	13
Springfield	490	13,296	27.2	3	130	2256	17.36	1

* Data from Annual Report, U. S. Commissioner of Education 1915, Vol. II.

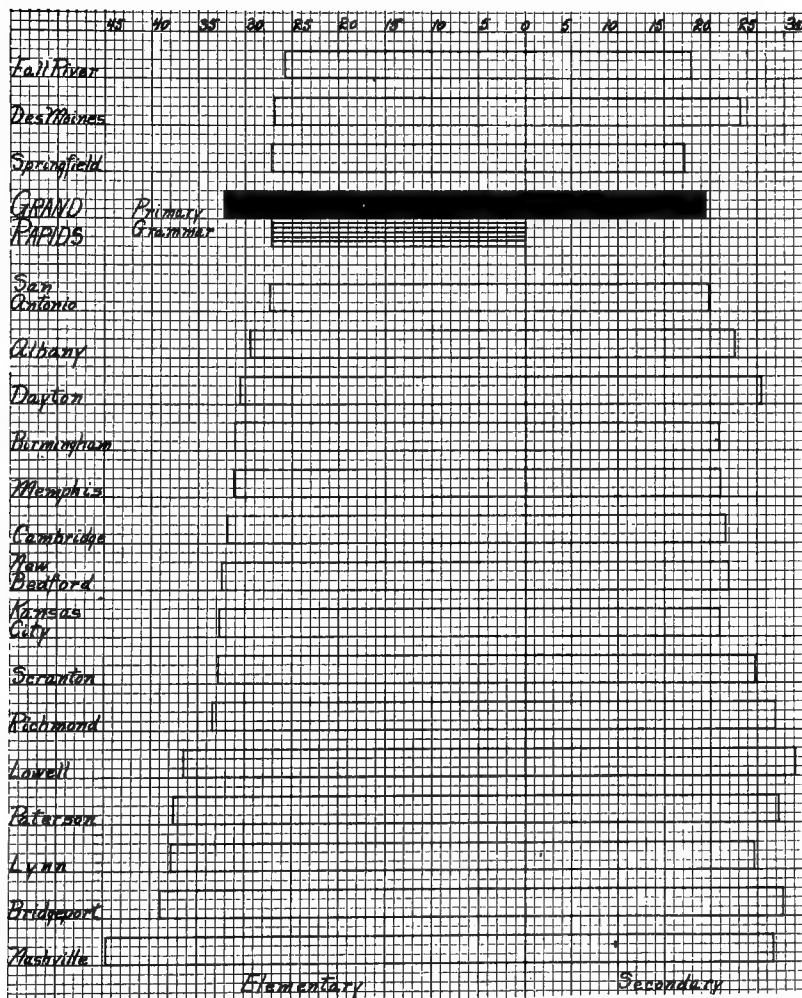


DIAGRAM XC—Number of pupils per teacher in elementary and secondary schools.

In consideration of the elementary school situation it should be said that the educational department has been giving considerable attention to the development of special schools, and special types of work. This is well shown in Tables LXXXVII and LXXXVIII, by the increase in enrollment in the auxiliary schools and classes (68 to 150 since 1911), and in the growth of ungraded work. At the same time the number of ungraded teachers has practically doubled, auxiliary teachers have increased from 4 to 12, special supervisors from 3 to 14, and kindergarten supervisors from 16 to 31. This indicates that in connection with the elementary phases of school work the attention has been given largely to special types of school work.

It was found above that Grand Rapids is spending a large amount of money on both elementary and secondary schools. Two factors could contribute to this condition: 1, a small number of pupils taught by each teacher; 2, a large average salary paid. The first factor has been found to exist; that is, Grand Rapids requires a teacher to teach a relatively small number of pupils. The city has been shown to rank high in its attention to reduction of size of class in the high schools and grammar grades of the elementary schools. We need the facts next as to the average salaries paid to different grades of teachers and as to the way in which these salaries compare with those of other cities.

Table XC shows the median or average salary paid (according to the 1915-16 payroll) to various grades of teachers* and in

TABLE XC

Median or Average Annual Salaries paid to Various Grades of Teachers in Grand Rapids Schools, 1915-1916.*

	Amount	
1. Central High School.....	1250	median
2. Union High School	1200	median
3. South High School	1050	median
4. Junior High School:		
a. High School Department.....	950	median
b. Junior Department	850	median
c. Elementary Department	850	median
5. Elementary School Teachers	800	median
6. Manual Training Teachers	1200	median
7. Auxiliary School for Exceptional Children.....	965	average
8. Oral School for Deaf	930	average

* Data from 1915-16 Payroll of Board of Education, exclusive of Principals, Assistant Principals and Directors of Special Subjects.

the various high schools. As has been indicated elsewhere in this report the Board of Education has not been supporting the three high schools equally. In the matter of salaries paid there is also a progressive increase from the Junior High School with a median salary of \$950, to the South High School with a median salary of \$1,050, to the Union High School with a median salary

of \$1,200, and finally to the Central High School with a median salary of \$1,250.

Tables XCI, XCII and XCIII compare the median salaries paid and the salary schedule of Grand Rapids with 16 other cities; also the increase in the salary schedule in Grand Rapids during the past nine years. It is found that Grand Rapids leads the list again in the typical salary which it pays to elementary school teachers. Together with Des Moines and Lowell it pays a median salary of \$800. It should be remembered that the Board of Education recently increased the salary schedule of elementary teachers for the third time in nine years. Table XCIII shows how this growth has come about. Since 1907 the Board of Education gradually extended the number of years of service through which it is possible to secure further increase in salary. This has resulted in extending the number of years for elementary teachers from 8 to 12 years with an accompanying increase in possible maximum salary from \$750 to \$1,000. Thus Table XCII shows that the city now ranks second in the maximum salary that it is possible for elementary teachers to secure. In this the city has kept abreast of the most progressive practice in this country.

The situation is nearly as satisfactory in the case of the high-school salaries. The median high-school salary paid in Grand Rapids is \$1,200 and this places the city in the top third of 19 cities. At the same time it has in like manner recently extended its high-school salary schedules with a consequent result that in 12 years of service, a teacher can advance to \$1,350. There is no distinction made between the salaries of men and women as in many other cities, with the result that the maximum salary possible for men, places Grand Rapids thirteenth in the list.

On the other hand Grand Rapids ranks 13th in the list of 19 cities in the median salary paid to elementary school principals, with a median of \$1,030. (Table XCI presents the data.) With the increase in the salaries of the grades and high-school teachers there has not been a sufficient increase in the salary paid to elementary school principals to bring them to the average of the group. An elementary school principal in Grand Rapids is not a teaching principal; she is primarily a supervisory officer. The results of this tabulation confirm the discussion made above of supervisors. It is a fair question whether more attention ought not to be paid to the supervisory phase of educational administration.

TABLE XCI

Median Salary Paid to Elementary Teachers and High School Teachers and Elementary School Principals.*

CITY	Median Annual Salary Paid to:			Rank in		Annual Salary		Paid to:
	Elementary School Teachers	High School Teachers	Elementary School Principals	Elementary School Teachers	High School Teachers	Elementary School Principals	Elementary School Principals	
Albany	750	950	2100	5, 6, 7, 8 or 9	14 or 15	1	1	
Bridgeport	750	950	1250	5, 6, 7, 8 or 9	14 or 15	8	8	
Cambridge	750	1500	1500	.....	1	6	6
Dayton	800	1100	1300	1, 2 or 3	8, 9 or 10	7	7	
Des Moines	700	1000	880	12 or 13	12 or 13	15	15	
Fall River	800	1200	1030	1, 2 or 3	4, 5 or 6	13	13	
GRAND RAPIDS	684	1080	1035	14	11	12	12	
Kansas City	800	900	850	1, 2 or 3	16	16	16	
Lowell	700	1100	2000	12 or 13	8, 9 or 10	2	2	
Lynn	720	1200	1800	10 or 11	4, 5 or 6	3 or 4	3 or 4	
Memphis	780	1180	1100	4	7	11	11	
Nashville	750	1100	1000	5, 6, 7, 8 or 9	8, 9 or 10	14	14	
New Bedford	750	1200	1800	5, 6, 7, 8 or 9	4, 5 or 6	3 or 4	3 or 4	
Paterson	595	1470	1650	16	2	5	5	
Richmond	720	.....	.....	10 or 11	.....	.....	.....
San Antonio	660	1250	1150	15	3	9 or 10	9 or 10	
Scranton	750	1000	1150	5, 6, 7, 8 or 9	12 or 13	9 or 10	9 or 10	
Springfield	.....	.....	.....	.....	.....	.....	.....

* Data from Bulletin No. 16, 1914, U. S. Bureau of Education.

TABLE XCII

Salary Schedules for High School Teachers (17 cities) and Elementary School Teachers (10 cities).*

CITY	HIGH SCHOOLS:				ELEMENTARY SCHOOLS:	
	MEN		WOMEN		WOMEN	
	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum
Albany	1000	1900	750	1000	500	800
Bridgeport	1000	1250	1000	1250	.....	.....
Cambridge	900	1800	750	950	500	900
Dayton	1000	1500	900	1500	.....	.....
Des Moines	1000	1400	800	1400	.....	.....
Fall River	800	1800	800	1200	700	.....
GRAND RAPIDS†	800	1350	800	1350	500	1000
Kansas City	900	1700	900	1700	600	930
Lowell	800	2000	650	1000	650	700‡
Lynn	700	1200	650	1100	.....	.....
Memphis	660	1320	480	1320	.....	.....
Nashville	900	1700	900	1700	400	700‡
New Bedford	1000	1700	800	1200	550	875
Paterson	1100	1800	800	1200	475	1050
Richmond	810	1800	630	1400	405	765
Scranton	1000	1250	1000	1250	500	900
Springfield	950	1900	750	1300	.....	.....

* Data from following sources: (1) U. S. Bureau Education, Bulletin No. 16, 1914. (2) Manuals of the Board of Education, Grand Rapids. (3) Correspondence with Superintendents and Business Managers.

† Data from 1915-16 Manual of Board of Education.

‡ Accuracy of data in doubt.

TABLE XCIII
Increase in Salary Schedules in Grand Rapids 1907-1915.

Year in Which Schedule Was Revised	GRADE SALARIES												
	Year of service during which salary can increase												
1907	1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th	11th	12th	13th
1912-13	400	450	500	550	600	650	700	750					
	400	450	500	550	600	650	700	750	800				
	Class I			Class II			Class III			Class IV			
1913-14	400	450	500	550	600	650	700	750	800				
1914-15	500	525	550	575	600	650	700	750	800	850	900	950	1000 In effect Sept. 1915

	HIGH SCHOOL SALARIES												
	Year of service during which salary can increase												
1907	1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th	11th	12th	
	600	Class I	750	750	800	800	900	900	1000	1000	1100	1200	
		650		Class II	850	1000	1050	1100	1150	1200	Class III	Class IV	
1913-14	800	850	900	950	1000	1050	1100	1150	1200				
1914-15	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350	

TABLE XCIV

Summary of the Ranks of Grand Rapids among the Cities of its class in Expenditures for Various Types of School Activities.

	RANK IN:	Year	No. of Cities	Rank of Grand Rapids:	
				Above Average	Below Average
1.	Expenditures for all School Purposes per Inhabitant.....	1915	19	3	....
2.	Expenditures for all School Purposes \$1000 Wealth.....	1915	19	6	....
3.	Per Cent of Governmental Cost Payments Devoted to Schools.....	1913	19	4	....
4.	No. of Pupils Taught per Teacher (Elementary).....	1915	19	4*	10**
5.	Average Salary Paid to Elementary Teachers.....	1915	19	3	....
6.	Average Salary Paid to Secondary Teachers.....	1914	....	1, 2 or 3	....
7.	Average Salary Paid to Elementary Principals.....	1914	....	4, 5 or 6	....
8.	Expenditures per Pupil for Business Purposes.....	1915	19	3	13
9.	Expenditures per Pupil for Educational Purposes.....	1915	19	2	....
10.	Per Cent of Total Current Expenditures to Business Purposes.....	1915	19	3	....
11.	Expenditures per Pupil for Supervision and Instruction.....	1915	19	5	....
12.	Expenditures per Pupil for Operation of Plant.....	1915	19	....	15
13.	Expenditures per Pupil for Maintenance of Plant.....	1915	19	2	....
14.	Average Expenditures per Pupil for Capital Outlay, 1910-11 to 1914-15 inclusive.....	1915	19	6	....
15.	Per Cent of Current Expenditures to: Administration.....	1915	19	2	....
16.	Supervision and Instruction.....	1915	19	3	....
17.	Operation of Plant.....	1915	19	....	14
18.	Maintenance of Plant.....	1915	19	....	12
19.	Business Offices.....	1915	19	4	....
20.	Superintendent's Offices.....	1915	19	4	....
21.	Salaries of Supervisors.....	1915	....	....	11 or 12
22.	Salaries of Principals.....	1915	....	6	....
23.	Salaries of Teachers.....	1915	....	2	....
24.	Stationery and Supplies.....	1915	....	3	....
25.	Wages of Janitors.....	1915	....	6	....
26.	Fuel.....	1915	....	3	....
27.	Water, Light and Power.....	1915	....	4	....
28.	Maintenance.....	1915	....	5	....
29.	Expenditure per Pupil for Elementary School Purposes.....	1915	17	2	....
30.	Expenditure per Pupil for All Secondary School Purposes.....	1915	17	2	....
31.	Per Cent of Current Expenditures Devoted to Elementary School Purposes.....	1915	17	....	13
32.	Per Cent of Current Expenditures Devoted to Secondary School Purposes.....	1915	17	5	....

* Grammar

** Primary

Summary of the "Cost" Findings

The outstanding facts of the cost of public education in Grand Rapids are summarized in Table XCIV. Together with the detailed tables and discussion of the foregoing pages it summarizes the evidence concerning the statements made on page 1.

1. We have shown that Grand Rapids spends more for school purposes per inhabitant than all but two other cities of its class, and that it spends more for school purposes per \$1000 of real wealth than all but five other cities of its class.
2. It devotes a larger part of its municipal income to the public schools than all but three other cities of the same wealth.
3. We have shown that it has repeatedly failed to take advantage of its capacity for making improvements through local taxation; that it has sold bonds each year for such purposes when all needed funds could have been raised through taxation without exceeding the legal limit.
4. It provides a larger number of teachers for its elementary schools than all but three other cities in the group; and a larger number of teachers for its secondary schools than all but two other cities in the group.
5. It pays as high an average salary to its elementary teachers as any other city in the country of the same size and wealth; its average salary to high-school teachers is exceeded by three cities in the group; it devotes considerably less money, however, to the payment of principals, ranking thirteenth in a list of 19 cities.
6. It spends more money per pupil in average daily attendance for business purposes than all but two other cities in its class and more money per pupil for educational purposes than all but one other city in its class.
7. Although endowing both educational and business purposes so highly when judged by its pupil expenditure, the Board of Education in Grand Rapids devotes a larger amount of attention to business matters than to educational matters when compared with other cities of the group. The table reveals that it gives a larger per cent of its total expenditures to business purposes than all but four cities of its class at the same time that it gives a smaller per cent of its total expenditures to educational purposes than all but four other cities of its class.
8. Analysis of the Board's expenditures for particular kinds of educational service reveals that it is spending more than the average of the cities of its class for each general type of educational activity, administration, supervision and instruction, operation of plant, and maintenance of plant.
9. That it has distributed its educational funds equitably between current expenditures and capital outlay is revealed by the fact that it has spent more for permanent improvements during the past five years than all but one of the 19 cities in its class.
10. More detailed analysis of its current ex-

penditures shows that it has failed to give the same proportionate emphasis to supervision and instruction, and to operation of the plant, that it has given to administration, and maintenance of the plant. 11. The Board of Education in Grand Rapids, while spending more per pupil for both elementary and secondary school purposes than all but one of the cities of its class, has given a larger proportionate emphasis to high-school education than to elementary school education.

Section D. Administrative Policies of the Board of Education.

1. Policy of the Board as to Source of Revenue for Capital Outlay.

(a) **Financing Permanent Improvements Through Taxation.** In discussing the distribution of school moneys between current expenses and permanent improvements reference was made to the general policy that the Board has established since 1906 of developing the school plant. In that connection we treated the general question of the development of school plant and the amount of money spent. No detailed analysis was made however of the way in which Grand Rapids is raising its money for permanent improvements. This is one of the most pertinent problems of school business management.

There are two methods by which the Board of Education may raise funds for capital outlay: first, by local taxation; second, by selling bonds. The city that adopts the first policy attempts to pay for its school plant as it goes. It places a premium on economical methods of financing the development of its physical plant. It aligns itself with the soundest school practice as recommended by those who have given the study of capital outlay for school purposes the most careful attention.

What has been the situation in Grand Rapids?

Diagram LXXIX shows graphically the facts set down in Table LXIII, the total possible amount of money available for the purposes of permanent school improvements during the past 10 years. It shows clearly that the Board has not been permitted in any year to take advantage of even 40 per cent of its legal capacity for taxation for improvements. We must say "not permitted" for there is distinct evidence that the Board has tried consistently to raise considerable money for building purposes through the budget. As noted above, the Board does not have tax levying power. This is invested in the Common Council. In making the budget for 1915-16 the only fairly large item the Common Council would approve was one for \$77,960, for paying off maturing bonds and interest. In addition they permitted one

item of \$20,000 for additional work on the South High School. Several items of \$35,000.00, \$16,000.00, \$17,000.00, \$13,000.00, for new sites development of certain elementary schools were all eliminated, a total that year of \$135,000 in the matter of permanent school improvements alone. It seems practically impossible to secure approval of budgetary items for permanent improvements of any size. This is clearly shown by Table XCV and Diagram XCI. They compare, for each of the past six years, the amounts actually spent for permanent improvements with the amounts that the Board of Education attempted to get from taxation and the amounts that the Common Council approved. In only one year did the Common Council approve all that the Board of Education requested. This was in 1913-14 when the permanent improvements budget was composed largely of an item for the payment of bonds and interest. In fact during the six years the amounts allowed have been mainly for the purpose of paying bonds and interest. In addition small items for refurnishing, plumbing and alterations have been allowed.

TABLE XCV

Comparison of the Board of Education and Common Council Budgets, together with Amounts spent for Permanent Improvements, 1910-11 to 1915-16 inclusive.*

YEAR	Board of Education Budget	Common Council Budget	Total Amount Spent for Permanent Improvements	Amount In- cluded in Com- mon Council Bud- get to be De- voted to Pay- ment of Bonds and Interest
1910-11	201,443.79	107,897.11	404,466.14	49,860
1911-12	183,166.50	121,166.50	245,751.97	78,792
1912-13	103,785.50	97,055.50	157,159.14	80,577
1913-14	100,089.00	100,089.00	89,880.59	64,095
1914-15	273,792.00	126,792.00	249,594.73	101,292
1915-16	233,310.00	98,960.00	545,771.48	77,960

* Data from Official Proceedings of the Board of Education.

These facts are shown more in detail by Table XCVI which gives the distribution of the amount of permanent improvements paid out of the budget in the ten years 1906-15 inclusive. It shows clearly that the Common Council adopts a policy of not permitting the buying of sites, making of large additions to buildings or erecting new buildings from the budget. The annual budgetary summaries show that the Board has consistently tried to finance such items as new sites in this manner. That they are not successful is shown by the elimination of \$133,500 from the 1914-15 budget. At the same time the Common Council

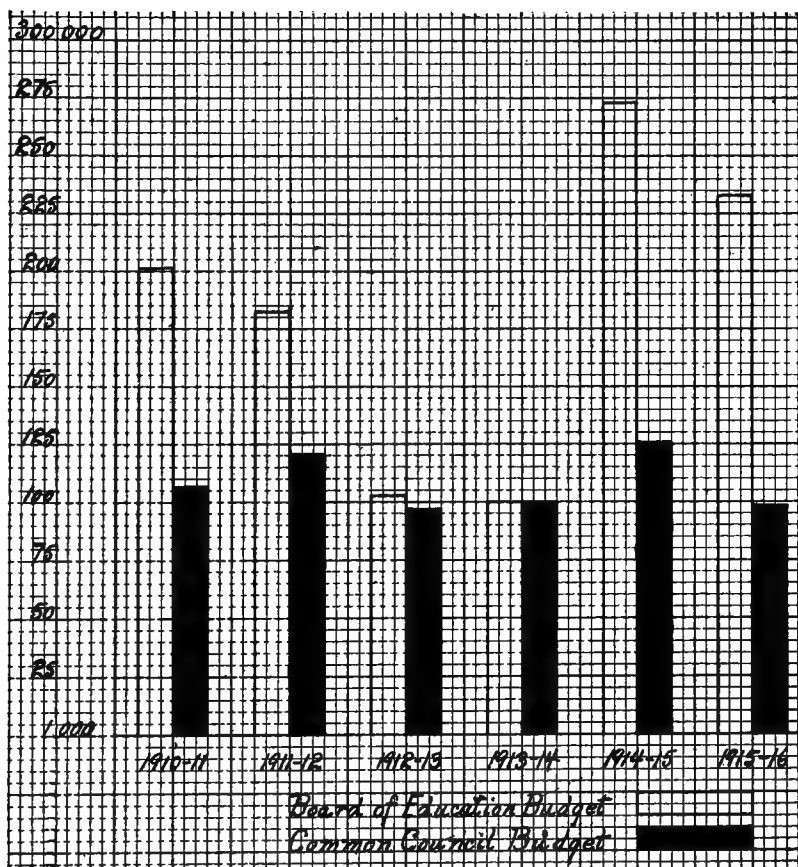


DIAGRAM XCI—Comparison of Board of Education Budget for Permanent Improvements with Budget Approved by Common Council.

seldom cuts down, in any large measure, the "current expenditures" portion of the budget.

In this connection it should be stated that the business organization of the Board of Education has safeguarded the budgetary procedure very well. It prepares a detailed and well-analyzed budget with which it goes to the Common Council for approval. There is no doubt that this tends to eliminate some of the unnecessary cutting of the budget. At least it places on the Board of Estimate and the Common council the necessity of the critical consideration of particular needs of the school system and tends to prevent wholesale reduction of the budget.

(b) **Bonding policy Concerning Permanent School Improvements.** We have established the fact that the city is not raising its money for improving the school plant from current taxation. It is raising it by selling bonds. Tables XCVII, XCVIII, XCIX and C and Diagrams XCII and XCIII answer certain questions concerning the Board's practice. To what extent has the Board bonded itself each year during the past 30 years? What has been the rate of interest? For what terms do the bonds run? How are the bond issues distributed in the building plan of the Board among different types of schools? How have the outstanding bond obligations of the Board accumulated?

Table XCVII states the amounts of bonds issued each year since 1887 with the rate and term of each issue. Table XCVIII and Diagram XCIII show the total bonded indebtedness, both for school and all city purposes each year since 1890. This diagram pictures clearly the financial aspects of the building situation in the Grand Rapids schools during the past 25 years. Attention has already been called to the fact that from 1892 to 1908 there was very little development of the physical plant. Table XCVII

TABLE XCVI

Permanent Improvements paid for out of the Budget 1906-1915.*

YEAR	New Sites	New Buildings	Additions to Buildings	Miscellaneous†
1915	.....	.....	.....	1,000
1914	.....	.....	.....	25,500
1913	.....	.....	.....	35,994
1912	.....	.....	.....	16,478
1911	.....	16,500.00	13,400.00	12,474
1910	.....	40,443.91	17,593.20	.....
1909	19,500	66,000.00	23,500.00	15,000
1908	19,744	14,437.00	20,992.64	3,500
1907	13,000	11,000.00	35,898.35	.....
1906	.....	30,000.00	20,000.00	.....

* Data supplied by Business Manager of Grand Rapids Public Schools.

† Miscellaneous includes: Permanent Improvements to old buildings, regrading, plumbing, playground work, remodeling, etc.

TABLE XCVII

Total Amount of Bonds issued, Rate of Interest and Term for which issued.*

YEAR	Total Amount	Rate	Term (years)
1887	21,000	4	20
1890	8,000	4	20
1892	25,000	4½	16
1892	23,000	4½	17
1892	12,000	4½	18
1892	28,000	4½	20
1905	16,000	4	2
1905	16,000	4	3
1908	30,000	4½	2
1908	30,000	4½	4
1908	40,000	4½	5
1908	75,000	4½	6
1908	75,000	4½	10
1908	75,000	4½	11
1908	75,000	4½	12
1908	25,000	4½	13
1909	25,000	4	6
1909	25,000	4	7
1910	10,000	4	5
1910	13,000	4	6
1910	40,000	4	7
1911	10,000	4	11
1911	35,000	4	12
1911	10,000	4	13
1913	25,000	4½	3
1913	35,000	4½	4
1913	75,000	4½	15
1913	58,000	4½	16
1913	50,000	4½	8
1913	65,000	4½	9
1913	40,000	4½	10
1913	75,000	4½	11
1913	70,000	4½	12
1913	64,000	4½	14

* Data from Annual Reports of Board of Education.

TABLE XCVIII

School and City Bonded Indebtedness 1890 to 1915.* On July 1, each year.

YEAR	School	Total City (Including School)
1890	\$211,000.00	\$ 977,000.00
1891	237,000.00	1,009,000.00
1892	397,000.00	1,867,000.00
1893	338,000.00	1,735,100.00
1894	351,900.00	1,994,000.00
1895	351,900.00	1,763,900.00
1896	330,000.00	1,635,000.00
1897	312,000.00	1,770,000.00
1898	297,000.00	1,884,000.00
1899	282,500.00	2,107,500.00
1900	256,000.00	2,057,000.00
1901	247,000.00	1,991,000.00
1902	237,000.00	2,102,000.00
1903	227,000.00	2,212,000.00
1904	218,000.00	2,212,000.00
1905	250,000.00	2,093,000.00
1906	204,000.00	1,871,000.00
1907	167,000.00	2,230,600.00
1908	126,000.00	3,150,200.00
1909	303,000.00	2,907,300.00
1910	508,000.00	3,395,300.00
1911	581,000.00	4,274,600.00
1912	553,000.00	4,371,600.00
1913	523,000.00	4,348,800.00
1914	649,500.00	4,555,300.00
1915	965,000.00	4,742,000.00

* Data from 1915 Annual Report of the Board of Education.

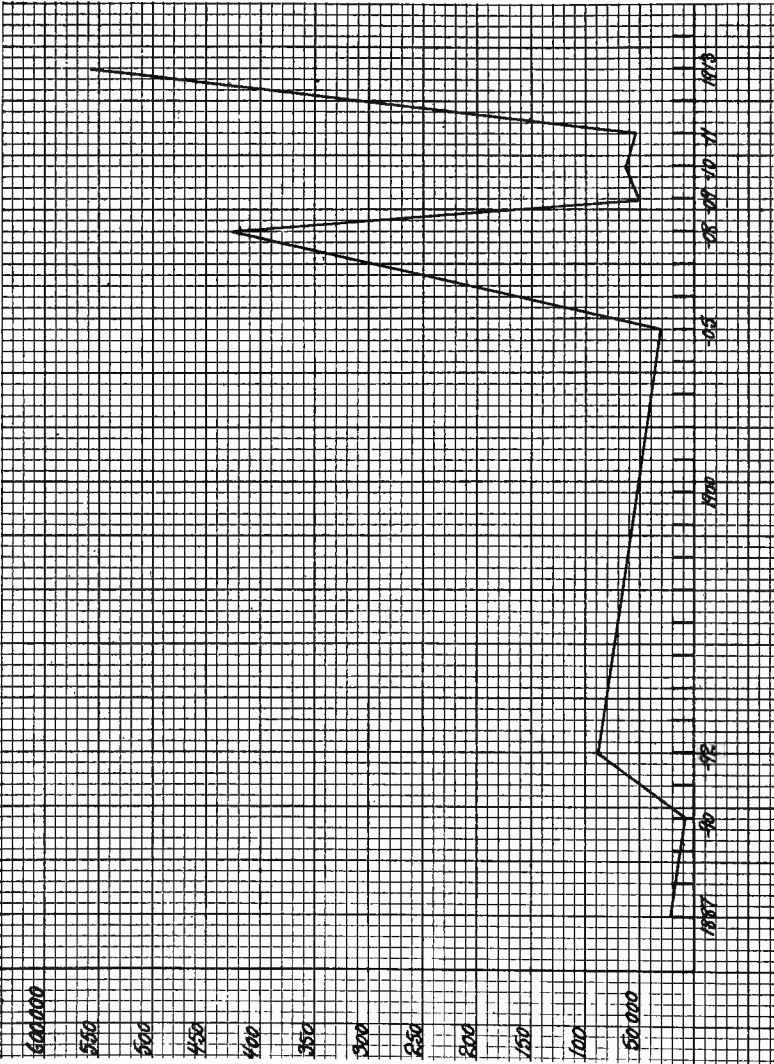


DIAGRAM XCII.—Total amount of bonds issued each year, 1887-1913 inclusive.

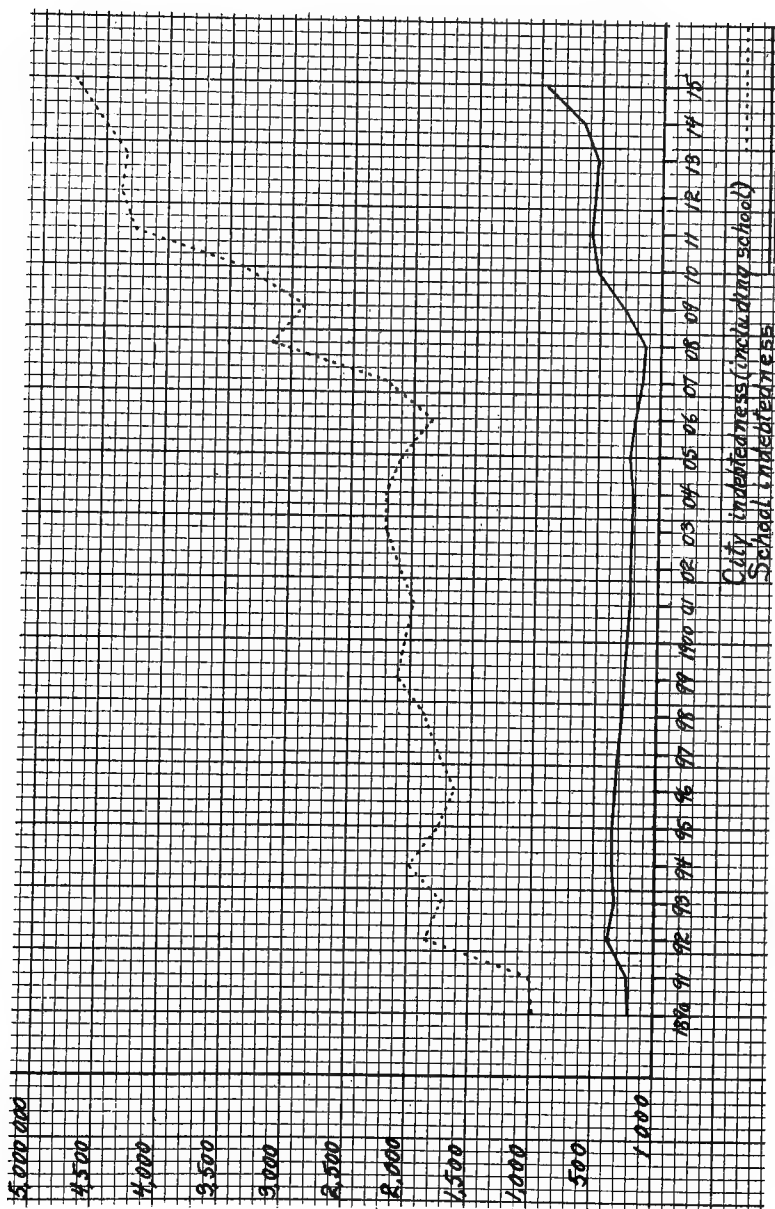


DIAGRAM XCIII.—Total city and school bonded indebtedness, 1890-1915.

shows that no bonding for schools was done for thirteen years and practically none for twenty years, 1887 to 1909. In the meantime the city paid off nearly all its outstanding indebtedness, the amount dropping in 1908 to \$126,000. It was in this year that the Board issued bonds to the value of \$425,000 largely for high-school development. It followed by small issues in 1909, 1910 and 1911 and in 1913 issued again for \$557,000.

Table XCIX shows for what type of schools bonds were issued from 1887 to 1913. About two thirds of the issues were for new high schools, the remainder going to new elementary schools (\$365,000) and to additions to old elementary schools (\$97,000). It is quite evident from an inspection of the bond issues proposed and not yet issued, that the Board is taking up a plan for elementary-school development.

It must be recognized that the expenditures for the past five years have been emergency expenditures. Due to their size and concentration within a short space of time it was perhaps necessary to finance some part of this building scheme from bonds. But it seems quite evident that the future annual building for some years to come required by the Board could be financed in the budget. The business department at one time studied the life of the buildings in Grand Rapids and came to the conclusion that the life of an elementary school of the type built prior to the recent construction of fire-proof buildings is about thirty-five years. Thus Grand Rapids will probably have to face the problem of building at least one elementary school each year. In addition to this it clearly will be forced to replace some of its older buildings at a more rapid rate. Even the most modern type of fire-proof building, such as the architectural department is now putting up (e. g. the new Sheldon School) can be built for less than \$100,000. If put in the budget this would mean an addition of about six-tenths of a mill. If occasion demanded, two or more such additions could be easily cared for.

The bonds issued under the earlier regime were long-time bonds, generally of the twenty-year type. There has been an attempt in the issuing of bonds since 1905 to issue short-term bonds and to distribute the amounts and term of the bonds as evenly as possible. From Table C it can be seen that outstanding bonds maturing in any year plus those bonds already authorized but not issued are so distributed as to mature at the rate of about \$100,000 a year. This can be handled in the budget without difficulty.

Thus, granted that the Board is forced by political conditions to get its additions to the school plant from bond issues, it ap-

TABLE XCIX
Total Bonds Issued 1887-1913, for different grades of Public Schools.*

Year	Total Bonds Issued	For New High Schools	For New Elementary Schools	For Additions to High Schools	For Additions to Elementary Schools	For Additions to Elementary School Sites	For New Elementary School Sites
1887	21,000.00						
1890	8,000.00				8,000.00		
1891	55,000.00	55,000.00					
1892	88,000.00		54,000.00		9,000.00		
1905	32,000.00						
1908	425,000.00	225,000.00	100,000.00	50,000.00	20,000.00		
1909	50,000.00			50,000.00			
1910	63,000.00	40,000.00	2,500.00	20,500.00			
1911	45,000.00		12,000.00			10,000.00	23,000.00
1913	557,100.00	300,000.00	197,000.00		60,000.00		

* Data from Annual Reports of Board of Education.

TABLE C

Total Amounts of Outstanding Bonds Maturing each year. 1916 to 1930.*

Year—June 30 to July 1	Principal	Interest	Total
1915-16	\$35,000.00	\$41,935.00	\$76,935.00
1916-17	63,000.00	39,912.50	102,912.50
1917-18	75,000.00	37,002.50	112,002.50
1918-19	75,000.00	33,727.50	108,727.50
1919-20	75,000.00	30,352.50	105,352.50
1920-21	75,000.00	26,977.50	101,977.50
1921-22	75,000.00	23,602.50	98,602.50
1922-23	100,000.00	19,752.50	119,752.50
1923-24	50,000.00	16,490.00	66,490.00
1924-25	75,000.00	13,702.50	88,702.50
1925-26	70,000.00	10,440.00	80,440.00
1926-27 .....	.....	8,865.00	8,865.00
1927-28	64,000.00	7,425.00	71,425.00
1928-29	75,000.00	4,297.50	79,297.50
1929-30	58,000.00	1,305.50	59,305.50
Total Outstanding	\$965,000.00	\$315,788.00	\$1,280,788.00
			Authorized—
			Not Issued
1920-21			\$25,000.00
1921-22			25,000.00
1923-24			50,000.00
1924-25			9,000.00
1925-26			5,000.00
1926-27			75,000.00
1927-28			11,000.00
Total			\$200,000.00

* Data from 1915 Report of the Board of Education.

pears that the officers in charge are administering the raising of the money in an efficient manner.

In this connection the relation between the time of issuing bonds and the completion of the contract for the payment for which they are issued is very important. Some cities have adopted the wasteful practice (sometimes enforced by statutory requirements) of selling bonds months before the completion of the building contract, the funds in the meantime drawing a low rate of interest in the bank. This Grand Rapids does not do. Careful study of the procedure in its relation to building activity convinces one that the business department is handling these matters efficiently. There is an attempt to sell the bonds close to the time that they will be needed. The general administration of bonding on the part of the business department is to be commended.

A condition of relative freedom from financial embarrassment does not justify a city in Grand Rapids' position in financing such outlay through bond issues. It is not difficult to justify the continued issuance of school bonds by a city if it is taking advantage of its capacity to make permanent improvements out of the budget. It is very difficult, on business principles, to justify the use of bonding methods if it has a large unused resource in taxation.

The most adequate treatment for the future could come

through legislation placing the taxing power in the hands of the Board of Education. As indicated above, to do so would bring Grand Rapids in line with the most progressive practice in the administration of school finance. The reorganization of the Board under the new charter 10 years ago eliminated political influences from the immediate administration of the Board's educational and business services. The Board should look forward to a reorganization of taxing methods which will put the raising of school funds on such a basis that real use can be made of a scientifically planned budget.

Section E. The Financial Aspects of Intermediate and Secondary Education.

1. The Cost of the High School Subjects.

A much discussed question the past few years is the cost of teaching the high-school subjects. With the rapid development of high-school departments, new ones constantly being added, the older ones have been brought on the defensive. Recently we have had emphasized in curriculum construction the purely *financial* criterion, namely—subjects shall be permitted in the secondary course of study if they do not cost too much. We must frankly admit, however, that we do not know how much the different subjects ought to cost. Is English expensive at \$50 per 1000 student hours? Mathematics at \$90? Should mathematics cost 80 per cent more than English? No one knows. We simply know in the case of a few communities *how much they do pay*. Again one is forced to use the criterion of common practice.

In Table CI the cost of each of the departments of the Central High School is compared with those of the same department of high schools in twenty-five other cities. The data are given for the two years 1914-15 and 1915-16, and to avoid the fluctuation due to irregularity in size of classes, the costs are averaged. It must be noted that these cities, with possibly three exceptions, are not in Grand Rapids' population class. The data are used here in this form merely because data on the cost of high-school subjects are not available for the cities that have been used throughout this study. It is merely affirmed therefore that compared with these twenty-five cities, Grand Rapids stands in the particular position noted. If it had been possible to get the data on the cities in question, we should have done so.

Several facts may be noted from the table. The better established subjects, e. g. English, Mathematics and Latin, show slight fluctuations in cost for the two years for which they were

TABLE CI
Cost of Teaching the High School Subjects. Central High School.

DEPARTMENTS	Cost of Instruction Per 1000 Pupils Recitations.		Mean Cost in 25 Cities	Average No. of Pupils Per Teacher†	Average No. of Pupils Per Teacher in 25 Cities
	1914-15	1915-16			
Commercial	67.67	91.54	\$69	17	19
Domestic Art	69.34	82.60		12	17
Domestic Science	67.02	139.16	61	14 }	13
Drawing and Design	53.01	68.46	...	13	18
Drawing and Shop	56.91	54.10	93	30	14
English	52.36	51.65	51	30	22
French	113.00	89.08	63	17 }	17
German	70.16	76.66		18 }	21
History	62.58	76.11	62	20	17
Latin	57.99	66.71	71	19	21
Mathematics	92.59	96.92	59	20	17
Science	73.51	86.77	60	22	20
Spanish	43.64	59.27	...	18	...

† School Review, Oct. 1915, page 505.

‡ Data from Official Program of Central High School and from Teachers' Semester Reports.

computed. This means that the number of pupils electing the subject was relatively stable. The opposite is true of the newer subjects, domestic science and art, the commercial subjects. French and Spanish enroll but few students and slight changes in enrollment affect the costs very considerably.

The data on size of class, Table CII, help us to understand the costs of the different departments when compared with each other. On the average, English teachers teach 50 per cent more pupils than the other subjects (drawing excepted) with a size of class of 30. Most of the other departments have an average size of class of about 17 to 20. Judged by the practice of Grand Rapids' group, the English classes are large. Judged by the amount of detail entailed in teaching English, it might be questioned whether they are not too large. (They are, of course, smaller than those in many cities.)

Diagrams which were drawn to accompany Table XXXIX (taken from Dr. Bobbitt's study of High School Costs in the School Review, October 1915) show clearly where Grand Rapids is when compared with the twenty-five cities for which data are available. Dr. Bobbitt's diagrams are so drawn as to show very clearly two factors: 1. the absolute amount spent for each of the subjects; 2. the position of each city in group.

TABLE CII

Average Size of Classes in Central High School for year 1915-1916.*

DEPARTMENTS	No. of Classes	No. of Pupils Enrolled	Average Class Enrolled
Commercial	20	339	17
Domestic Art	10	116	12
Domestic Science	6	81	14
Drawing and Art	5	65	13
Drawing and Shop	5	150	30
English	46	1257	30
French	5	87	17
German	14	252	18
History	20	399	20
Latin	16	299	19
Mathematics	28	578	20
Science	23	509	22
Spanish	3	53	18

* Data from Official Program of Central High School and from Teachers' Semester Reports on Enrollment, Attendance, Etc.

We can study graphically, therefore, the position of Grand Rapids in its teaching costs, when compared with these other communities. The diagrams show that in seven subjects (Mathematics, History, English, Science, Modern Language, Domestic Science and Art and Commercial Studies) out of nine, Grand Rapids spends more than the median city in the group. Only in shopwork and Latin is it below the median. For English it pays almost exactly the median amount, \$52. For mathematics it is

admittedly paying a large amount, only three public high schools in the list paying more. Again it must be stated that these figures are not thoroughly comparable because in most of these communities the salary schedules are believed to be lower than in Grand Rapids. According to our tables, the household occupations are expensive subjects to teach, due to the very small classes enrolled.

These data on departmental cost bear out the analysis made throughout this study that nearly all phases of education in Grand Rapids are expensive. The city is spending an unusual amount of money on its schools, on its high schools especially. It is providing small classes, thereby enhancing the "probability" of good instruction. This study of costs emphasizes the need for a thorough study of the outcomes of high school instruction. Are the English classes doing efficient work under an average class of 30? Are the household subjects turning out a product up to the standard demanded by the very small size of class under which they are operating? Can the high cost of mathematics be justified?

This part of the survey cannot answer these questions. The answer can come only through detailed analysis of the outcomes of teaching in each of the departments. The cost study can result in the following statement, however: Grand Rapids is providing a good high-school salary schedule (lower than the average of cities of its class, nevertheless); it is providing enough teachers in most of its classes so that the number of pupils per teacher is smaller than in most cities of its class; it is paying more than the average for high-school instruction; it is housing its high-school pupils munificently; it is liberally equipping these school-houses with apparatus and supplies. In a word, it is giving a large amount of opportunity for the development of efficient high-school teaching.

2. The Cost of Intermediate Education.

It has been pointed out in this report that Grand Rapids has committed itself to a complete program of reorganization in the intermediate grades, i. e. the seventh, eighth and ninth. Since the school year 1910-11, six types of intermediate education have been in evidence. These are: 1. The retention of the traditional grade form of instruction in the seventh and eighth grades of many of the elementary schools; 2. The gradual de-

partmentalizing of one of these grade schools (Sigsbee); 3. The retention of the ninth grade work in the Senior High School; 4. The segregation of the seventh, eighth and ninth grade work in the Junior High School (together with some lower work); 5. The inclusion of all grades of intermediate education in the Union School; 6. The beginning of a complete six-year high school, extending from the seventh to the twelfth grade inclusive.

It was originally planned to make a comparative study of the cost of instruction in the seventh, eighth and ninth grades in each of these types of intermediate education. For this purpose five representative grade schools giving instruction through the 8-2 grade were selected, namely—Coldbrook, Hall, Lexington, Palmer and South Division. The semester costs of instruction per pupil enrolled were computed for these schools for the second semester of each of the years 1911 to 1915 inclusive, and for the first semester of 1915-16. These computations are believed to be valid and are reproduced in this report as Table CIII. They were computed from the teachers' salary rolls and the teachers' semester reports on enrollment. (The figures for enrollment are used throughout this discussion because those for average daily attendance were not available.)

The data were next secured from each of the high-school programs and semester reports for the ninth grade. This necessitated checking with the principal's office the program for each high school for each year. The amount of time devoted by each teacher to the various year-subjects she taught was prorated as accurately as possible. (No attempt was made to include music and physical education as the subjects and the classes taught were so mixed in grade-composition as to be unanalyzable.) It is believed that the ninth grade costs are fairly to be relied upon. Thus we can compare costs for instruction in regular seventh and eighth grades with ninth-grade costs in high schools, with but slight amount of error in our judgment. Table CIV gives the data.

Similar data were desired for the seventh and eighth grade in the high schools giving instruction in those years. Programs were secured and an attempt was made to prorate the time of teachers to the different grades. In the case of the regular grade teachers it is felt that this was accurately done. With the special subjects and teachers it was extremely difficult to do so. The

TABLE CIII

Cost of Teaching each Pupil Enrolled in 7th and 8th Grades of Five Elementary Schools. 1911 to 1916 inclusive.

YEAR	COLDBROOK Grades		HALL Grades		LEXINGTON Grades		PALMER Grades		SOUTH DIVISION Grades	
	8th	7th	8th	7th	8th	7th	8th	7th	8th	7th
1911	10.56	10.28	11.37	9.87	10.10	8.53	14.05	7.82	10.28	11.82
1912	12.93	10.00	12.40	8.73	12.29	10.56	10.42	9.87	10.42	10.14
1913	14.64	11.77	12.12	10.91	10.53	15.00	11.72	9.68	18.97	11.45
1914	13.05	10.72	12.72	10.00	10.26	9.68	10.72	7.45	12.91	11.11
1915	12.70	11.04	11.43	10.53	9.92	11.54	9.76	11.11	11.32	10.53
1916	12.50	12.89	10.63	11.39	12.32	12.50	10.73	12.88	15.18	10.25
Average Cost for 6 Years	12.73	11.11	11.78	10.24	10.90	11.30	10.23	9.80	13.18	10.88

matter was complicated by the fact that programs are built by subjects and not by years. Although the courses follow a certain grade order fairly well, the enrollments in them overlap. Furthermore, in the case of the Junior High School, programs were not available for previous years by which all time could be accurately prorated. The special teachers in this school could only divide their time by memory, an extremely insecure basis in any event. The result is that we feel that the figures for the cost of instruction in the seventh and eighth grades in the two high schools (Junior and South) are to be taken as only rough indications of the tendency in the relative costs of intermediate education during these years and in these schools.

The figures obtained for the Junior High School (1912, 1913, 1914, 1915, 1916) and the South High School, first semester of 1915-16 are as follows:

TABLE CIV
Cost of Instruction per Pupil Enrolled in the 9th Grade,** 4 High Schools. 1912-1916.*

YEAR	Central High School				Union High School				Junior High School				South High School			
	Number of Dif-ferent Pupils	Total Salaries Paid	Cost Per Pupil Enrolled	No. of Different Pupils Enrolled	Total Salaries Paid	Cost Per Pupil Enrolled	No. of Different Pupils Enrolled	Total Salaries Paid	Cost Per Pupil Enrolled	No. of Different Pupils Enrolled	Total Salaries Paid	Cost Per Pupil Enrolled	No. of Different Pupils Enrolled	Total Salaries Paid	Cost Per Pupil Enrolled	
1912	527	\$6,045.00	\$11.48†	216	\$4,545.50	\$21.04	116	\$2,590.62	\$22.33	116	\$2,590.62	\$22.33	267	\$6,359.16	\$23.82	
1913	376	8,240.00	21.92	186	4,423.82	23.79	156	3,096.57	19.85	156	3,096.57	19.85	267	6,359.16	23.82	
1914	487	5,715.00	11.74†	200	4,092.50	20.46	195	3,392.27	17.40	195	3,392.27	17.40	267	6,359.16	23.82	
1915	372	8,385.00	22.54	195	4,250.83	21.79	287	6,140.83	21.40	287	6,140.83	21.40	267	6,359.16	23.82	
1916	302	7,467.50	24.72	230	4,613.18	20.06	244	4,052.70	16.61	244	4,052.70	16.61	267	6,359.16	23.82	

* Data computed from payrolls, teachers' programs, and teachers' semester reports.

† Data computed by dividing total class enrollments by number of courses regularly taken, four. This plan was approved as being approximately correct by the principals of the four schools.

** Salaries prorated to 9th year from programs.

† Results cannot be explained with data available. In view of the costs computed in the same school other years and in other schools the amounts stated are clearly exceptional to the rule and probably in error.

Bearing in mind the limitations in the validity of the data, there are several outstanding facts of interest and importance in connection with this vital problem of the reorganization of the grades.

First: The cost of teaching both the seventh and eighth grades in the traditional elementary schools is fairly well standardized throughout the city. The cost does not vary widely in any one grade in the five representative elementary schools selected in any one year. (This is contributed to, no doubt, by the relative permanence of the teaching staff, most of the upper grade teachers having nearly reached the same salary limit.) There are certain exceptions to this statement in the data, but we have not the educational evidence at hand to trace the cause for their occurrence.

Second: It costs one to two dollars more per pupil per semester to teach eighth grade pupils than it does to teach seventh grade pupils. In twenty-two instances out of thirty in the above table, eighth-grade costs exceed seventh-grade costs. *The amount of excess is relatively small, however.* One may feel that in these representative schools of Grand Rapids *the upper levels of the elementary grades are being financed as a unit.*

Third. Allowing for possible errors in the data from which costs for the seventh and eighth grade instruction in the Junior and South High Schools were computed it may safely be concluded that the segregation of the upper grades in the so-called intermediate school means a very considerable addition to the cost of instruction. A semester's instruction in the regularly organized eighth grade, costs about \$12.00 per pupil enrolled. A semester's instruction in the eighth grade as organized in the intermediate school costs very nearly \$20.00. A regularly organized seventh grade costs about \$11.00 per semester; an "intermediate" or "junior high school" seventh grade costs very nearly \$18.00 per semester.

Fourth: It cost relatively little more for one semester's instruction in the ninth grades of the four high schools than it does for the eighth grades in the intermediate school. There is a difference of perhaps \$2.00 or ten per cent on the average. Where eighth grade education costs about \$20.00 per pupil per semester, ninth grade education costs about \$22.00.

The computations, even when regarded as but approximate in the determination of grade costs, point to the following conclusion. *The cost of instruction in the intermediate grades of the city schools is largely determined by the type of organization under which the administration operates.* Seventh and eighth grades are being taught under two particularly different types

TABLE CV
Semester Costs of Instruction per Pupil Enrolled for Various Special Classes.*

YEAR	AUXILIARY CLASSES IN:								
	Auxiliary School			Straight School			Widdicomb School		
	Total Salaries Paid	No. of Pupils Enrolled	Cost Per Pupil Enrolled	Total Salaries Paid	No. of Pupils Enrolled	Cost Per Pupil Enrolled	Total Salaries Paid	No. of Pupils Enrolled	Cost Per Pupil Enrolled
1901 .....	.....	.....	.....	.....	.....	.....	.....	.....	.....
1906 .....	.....	.....	.....	.....	.....	.....	.....	.....	.....
1911	\$800.00	53	\$15.09	\$400	15	\$26.66	.....	.....	.....
1912	1225	58	21.12	400	18	22.22	.....	.....	.....
1913	1725	59	29.15	425	20	21.25	\$326.70	18	\$18.15
1914	1830	62	29.51	450	17	26.47	350.00	18	19.44
1915	1830	55	33.27	450	14	32.14	310.25	18	17.23

* Data from teachers' payrolls and semester reports.

TABLE CVI
Cost per Pupil Enrolled for Instruction in (1) The Auxiliary School; (2) Auxiliary Classes in Regular Elementary Schools; (3) The Oral School for the Deaf.

YEAR	The Auxiliary School	Auxiliary Classes in Elementary Schools:			Oral School for the Deaf	Auxiliary Classes in:	
		Straight	Widdicomb	Coldbrook		Junior High School	Franklin School
1901 .....	.....	.....	.....	.....	60.71	.....	.....
1906 .....	.....	.....	.....	.....	59.21	.....	.....
1911	15.09	26.66	.....	.....	30.00	.....	.....
1912	20.77	22.22	.....	.....	51.85	.....	.....
1913	29.15	21.25	18.15	.....	60.34	.....	.....
1914	29.51	26.47	19.44	.....	40.00	19.77	.....
1915	33.27	32.14	17.23	22.06	65.38	.....	21.43

TABLE CVII
Semester Cost of Instruction Per Pupil Enrolled in 7th and 8th Grades in two Intermediate Schools.

	JUNIOR		SOUTH	
	7th Grade	8th Grade	7th Grade	8th Grade
1912	24.10	15.93	.....	.....
1913	15.66	16.80	.....	.....
1915	22.23	24.05	.....	.....
1916 (first semester)	15.67	21.83	14.03	18.96

Junior High School			Coldbrook School			Franklin School			Oral School for the Deaf		
Total Salaries Paid	No. of Pupils Enrolled	Cost Per Pupil Enrolled	Total Salaries Paid	No. of Pupils Enrolled	Cost Per Pupil Enrolled	Total Salaries Paid	No. of Pupils Enrolled	Cost Per Pupil Enrolled	Total Salaries Paid	No. of Pupils Enrolled	Cost Per Pupil Enrolled
.....	\$850	14	\$60.71
.....	1125	19	59.21
.....	900	30	30.00
.....	1400	27	51.85
.....	1750	29	60.34
\$425	22	\$19.77	.....	...	.....	.....	...	.....	1200	30	40.00
.....	\$375	17	\$22.06	\$450	21	\$21.43	1700	26	65.38

of organization. It is believed that the above data show that one is costing much more than the other. A previous section of this study has shown that the salary schedule increases with the increase of general level taught, that is; that junior high school teachers are being paid more than grammar grade teachers, and senior high school teachers are paid more than junior high school teachers.

The above analysis is merely a financial one. It is not possible to explain these costs clearly in this report by specific educational evidence. Doubtless there are educational outcomes of the segregated type of intermediate education that will justify an increase in per pupil cost of sixty to seventy per cent. With such an important reorganization as is involved in the changes recently made in this school system, each of the administrative agencies should be brought to bear on an attempt to evaluate every phase of the problem. Among others, the statistical and financial departments could well make a detailed analysis of the problem of costs throughout all levels of education represented in the city system. The present diversity in types of organization under which the Grand Rapids school system is operating is fairly unique. The educational and business departments have an opportunity to carry on an instructional and financial inquiry that would result in a distinct contribution to the solving of a

very important problem. The accuracy of the analysis made in this report has been partly limited by inadequacy of historical data. The administrative officers could perfect the methods of collecting the data and would then be in a position to determine future procedure by pertinent experimental educational and financial evidence. Wholesale reorganization hardly should be undertaken without thorough experimentation on a limited scale which would in turn result in specific outcomes in the way of principles of educational and financial procedure.

CHAPTER XV

THE BUSINESS MANAGEMENT OF THE PUBLIC SCHOOLS

Harold O. Rugg

General Organization

There are two major departments in the administration of a school system: the educational department and the business department. They both are phases of one educational scheme, the machinery of which has been set up by the city for the education of its children. Each department may keep its autonomy just to the degree that it necessarily makes a specialized contribution to the teaching of children.

Grand Rapids administers its schools through a dual organization. Its purely instructional and supervisory affairs are managed by a superintendent of schools. Its material and business affairs are managed by a business manager. Each major officer reports immediately to a committee of the board, the superintendent to the educational committee, the manager to the business committee. The superintendent also confers with the business committee. Diagram XCIV represents the distribution of general functions in the Grand Rapids school system. It shows that the educational and business matters of the board are being regarded as two distinct phases of school administration. It is very clear that there is no one executive officer over the whole school system who brings in review each week, each month or each year all the different types of activity contributing to the education of children.

The business department of the public schools may be regarded as a very essential organization to aid in the training of children. It can legitimately be regarded, however, only as

Diagram xciv - Distribution of general functions in the Grand Rapids school system

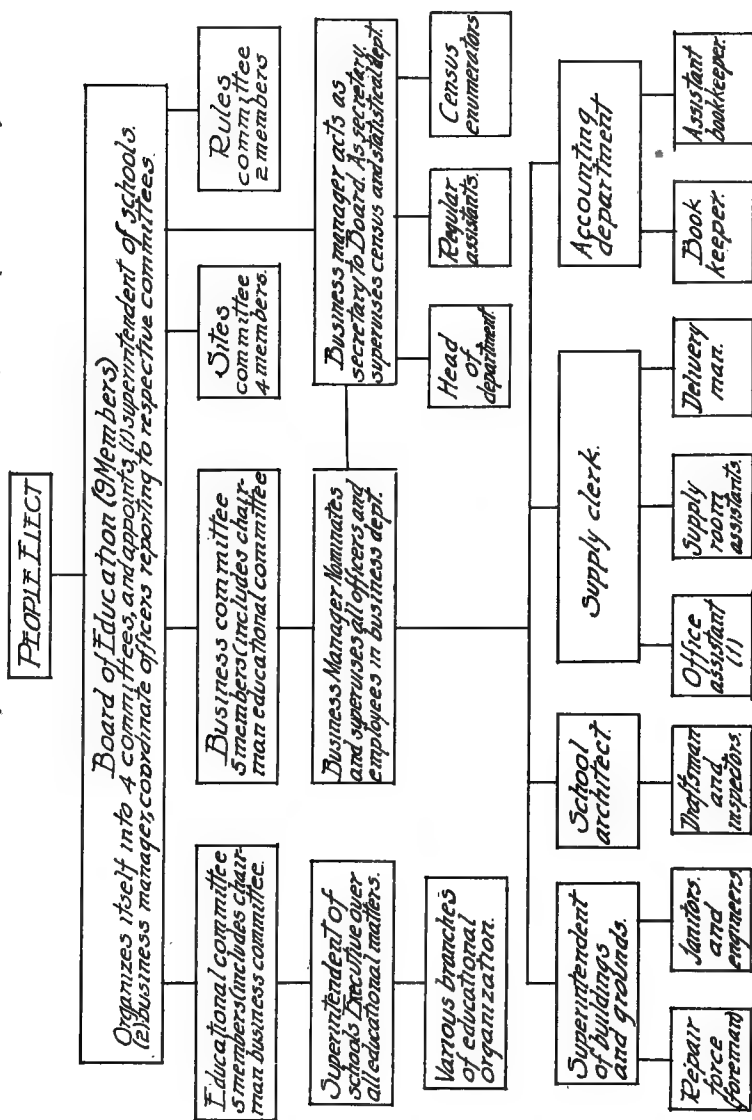


DIAGRAM XCIV—Distribution of general functions in the Grand Rapids school system.

a subordinate part of the whole system; *necessary*, it is true, *but subordinate* nevertheless. Schools are established for the teaching of children. To administer schools, buildings must be built and equipped (hence we must have the school architect); buildings must be heated, ventilated and cleaned (hence the janitorial staff); buildings must be repaired and kept in good condition (thus the permanent repair gang); pupils must be provided with utensils and materials to work with (hence the supplies department); administrative officers, teachers, janitors, other employees, and all outside creditors must be paid (therefore the financial, bookkeeping and auditing department); the people, the Board of Education and administrative officers want to know how much education costs (so we have a cost accounting department). These are all very necessary business functions that have grown up in the administration of public schools.

It is believed by the Survey Staff that a dual organization in Grand Rapids does not contribute to the greatest school efficiency. That there was need of relating the work of the educational and business departments the Board itself has recognized in the way in which it has organized itself. It has attempted to relate the work of the two departments by making the chairman of each committee an ex-officio member of the other. This, of course, merely functions as a final review or check on the work of the two departments.

There are several particular reasons for advocating a unit system of school administration in Grand Rapids.

1. The historical development of the system itself, during the past four years is indicative of the need for a more unified form of organization. The system has grown rapidly in size, teaching staff, types of educational work offered by schools, types of organization, etc. It has already been shown that the city is developing a new type of intermediate organization. At the same time, the business phases of school administration have broadened out rapidly, new departments have been added and centralization of operation taken place. On a purely commercial basis the business department has operated efficiently. There is little evidence, however, that there is complete co-operation between the educational and business departments in this expansion of school activities. It is felt that large educational experiments have been undertaken without complete studies of cost contributed by the business department, e. g., the junior high school reorganization, development of special schools, etc.

2. The accounting methods of a school system should be organized primarily on the principle that they must contribute specific knowledge on particular phases of educational work.

A statement of receipts and disbursements is not sufficient. It is shown in a later section that the funds and accounts are not so organized as to result in a desired statement of educational service rendered. It is true that a few types of educational cost are figured, but many very pertinent types of cost data are missing. This will necessarily hamper an educational administrative officer who wishes to construct school policies and make definite recommendations on the basis of such.

3. The preparation of a school budget to be put before the Board of Education for approval should be the work of two departments brought together under one reviewing agency, able to judge of relative values from an educational standpoint. It is felt that the present type of organization makes this impossible. It seems clear to the Survey Staff that there is no single major officer in the business department intimately acquainted with *school* problems or principles of school *administration*. It may be questioned whether the school system is not being administered educationally by one officer on educational principles and from the business standpoint by another officer on business principles. A single major educational officer will supply the necessary "educational" insight to use the business organization in the improvement of school practice. (It is very true that the business department has worked out a thorough budgetary procedure which is to be commended on business principles.)

4. It has been shown elsewhere in this report that the Board has given a very large amount of attention to the physical and business aspects of the school system during the past few years. In this it has tended to spend slightly more for business purposes than it has for educational purposes. It is believed that this is contributed to by the existence of a dual form of organization. Under the unit form of educational control if there is a tendency to emphasize business expenditures, it will be done with knowledge of the fact that in making the recommendations in the budget, complete account has been taken of the educational needs of the system.

5. The present school report of the Board of Education is a dual report. One is impressed with the fact that certain costs, computed in great detail, are reported each year by the Business Manager with no educational use being made of them. It will be shown later that the detailed computation of the costs of heating buildings has not been used definitely in the improvement of heating school buildings.

6. The bureau of census and statistics, although primarily dealings with "educational" facts has been placed in the Business Manager's organization. It will be shown later in this report

that this has led to repetition of the work of the department of attendance and to studies of educational research being undertaken of which no application was made to improving school conditions. The Survey Staff is convinced that although the two departments (census and statistics, and attendance) are naturally one, there is no co-operation between them. It can be traced immediately to the fact that their superior officers are under separate heads of the organization. The problem of re-organization is taken up later in another chapter.

We shall now discuss the work of the business organization, dealing with the various departments separately. In addition to what has been said above it should be stated that the rules of the Board give the Business Manager complete supervision of the operation and maintenance and construction of the plant; of the purchase, storage and distribution of supplies; of the taking of the census and of the manipulation of various school records; of the bookkeeping and financial accounting of the Board. Within this department there is started the beginnings of a sound centralization of administration.

I. MANAGEMENT OF THE SCHOOL PLANT

A. General Organization. The Superintendent of Buildings and Grounds

Diagram XCIV shows the general organization of the management of the school plant. The business manager is made immediately responsible for the management of the school plant, and he *is assisted by* a superintendent of buildings and grounds. This officer came into the administrative organization under the rules of the Board of Education adopted in 1907. At that time under the title Foreman of Building and Grounds, this person was immediately in control of the heating, ventilating and general operating of buildings. His powers were, however, quite largely submerged in those of the Business Manager. In fact, the rules of the Board specifically made the Business Manager immediately responsible for all the duties the foreman was expected to attend to. In 1913 the rules were revised, and the position of superintendent of buildings and grounds was created. It is pertinent to note, however, that the superintendent was created *as an assistant of the Business Manager*. (See Revised Rules of Board of Education, Articles 48 and 49). The Business Manager is made immediately responsible for all the regular duties of a foreman or superintendent of buildings and grounds. For example, he has charge of maintenance of buildings, repairs, alterations, etc.: has "direct supervision of the heating and

ventilating apparatus," etc., "shall also supervise and direct janitors in all matters pertaining to the care and maintenance of buildings and grounds; inspect and investigate the work of each janitor as frequently as possible," etc.; have power to remove janitors, etc. The rules make the Superintendent of Buildings the inspectorial assistant of the Business Manager. The Board very properly permits the Business Manager to recommend the appointment of the Superintendent of Buildings. The latter, however, is not given specific power, except as it is delegated by the Business Manager, to carry out the principal functions of his office. For example, the selection of the janitors and engineers on this staff are made, according to the rules, by the Business Manager. In the actual conduct of the department, it has been true, of course, that the Business Manager and the Superintendent of Buildings have consulted on such matters and worked together in carrying out the duties of the office. There is evidently, however, (as will be made clearer later) that the operating force, being selected and recommended by the Business Manager, in a great many cases are reporting immediately to him and not to their proper superior officer.

The Function of a Superintendent of Buildings and Grounds

Proper principles of business management would suggest a more thoroughly co-ordinated department in charge of the management of the school plant. The position of Superintendent of Buildings and Grounds of a large school system like that of Grand Rapids *should be a major executive position*. This officer at the present time has charge of two large departments: (1) the operation of school buildings and grounds, (the janitorial force); (2) the maintenance of buildings and grounds (the repair force). This entire force at the present time totals nearly ninety persons. He should, it is true, report to and be under the immediate jurisdiction of the Business Manager. He should, however, be made independent *within his own department*. This means especially that he should select all the persons on his operating and maintenance staff and that they should report to him on all matters connected with his department. Careful study of the present administration has convinced the Survey Staff that there is a tendency among the members of the operating force to report directly to the Business Manager's office on all sorts of matters. This is probably enhanced by constant use of janitors as messengers to do errands between the Board of Education office and the various schools. (This matter is discussed more fully later). It seems very clear that to put the operating and maintenance of the public schools on a thoroughly

business basis will demand a more completely worked out division of authority. The efficient working of the staff demands centralization of authority in the hands of the Superintendent and the more complete establishment of his prestige in the minds of his men.

The position of Superintendent of Buildings and Grounds in Grand Rapids should be regarded as a major *professional* position. To impartial outside observers it is evident that the position has tended to become a minor routine position. A list of the actual activities of the present superintendent are impressive in this respect. They may be classified as follows:

1. Innumerable and unclassifiable calls at the superintendent's home for assistance, information, request for supplies to be made, for equipment, etc. Minor matters of the slightest moment occupy his attention.

2. Office work at his office in the morning from eight to ten o'clock. This office work is hardly of an executive or inspectorial nature, but is largely made up of clerical duties. For example, he takes over the telephone, personally, thirty to fifty calls each morning and writes, by hand, work orders for repairs, orders for supplies, equipment, etc.

3. Checks over finished work orders with particular reference to cost, labor, etc.

4. Requests prices on lumber and other materials; confers on bids, and prices; orders materials, etc. The superintendent is given power to order any material up to \$25.00. Beyond that he secures the approval of the Business Manager.

5. Inspects playgrounds and fields. On occasions has had to personally supervise the cinder surfacing and rolling of athletic field. Looks after grading, seeding, sodding of lawns, etc.

6. Makes annual inspection of all buildings and grounds during February and March for an estimate of summer repairs.

7. Personally looks after regulation, repairs to and handling of program bell systems in buildings.

8. Spends considerable time in detailed inspection of engineering plant; personally designs various parts of engineering equipment.

9. Superintends installation of electric lights, call bells, fire gongs, etc.

10. Has immediate charge of building of equipment, furniture, etc.

11. Designs and installs playground apparatus.

12. Purchases various supplies for power plant, for repairs and new equipment.

13. Goes to buildings as requested by janitors and principals for inspection and advice on special matters.

The above items form but a partial list of the duties of this executive officer. It is complete enough, however, to give an adequate idea of the multiplicity of routine duties that he is forced to attend to. The Board of Education evidently *planned* that he should be *primarily an inspecting assistant to the Business Manager*. (Article 49 (a) of Rules). That he is not able to attend to these inspectorial duties is very evident. Interviews with the janitors and principals in over twenty buildings indicate that little or no inspection of buildings is done. The rules state that the Superintendent shall inspect each building twice a month. The Superintendent has not inspected the janitors in many of the buildings for several months. It is an open question whether such a rule is proper, whether such frequent inspection as twice a month is necessary. It is evident, however, that a superintendent of buildings who has become largely a clerical assistant cannot find the time to do it.

Somewhere in the administration of the school plant it should be possible to find a cost department. Its proper place is immediately under the superintendent of buildings and grounds. Due to the misconception of the proper function of this officer, no adequate system of cost records has been established. Although this matter will be discussed in more detail later, it is mentioned here in connection with the functions of the superintendent.

Summary of Recommendation on the Management of the School Plant

To sum up, then:

1. There should be one chief executive immediately over the operation and maintenance of plants, reporting to the Business Manager.

2. He should be made independent within his own department, selecting for appointment and recommending for promotion the men under him.

3. He should be supplied with adequate assistance to relieve him of much routine work that he is now handling personally. (A specific suggestion along this line is made in connection with the repair force.)

4. His position should be made a major professional position, executive and inspectorial in nature.

5. There should be developed an adequate system of cost records, worked out and classified in such a manner as to con-

tribute to business efficiency and to a specific statement of operating and maintenance costs.

B. The Operation of Buildings: The Janitorial Force

The school buildings of Grand Rapids are being operated by a relatively stable janitorial force. Out of twenty-two janitors visited, none had been in the system less than three years, and many had served seven years or more. An attempt was made to secure from the records of the Business Manager and Superintendent detailed information on the tenure, previous training and experience of janitors. It should be emphasized that no such complete records are available. The only record on hand is a file of application cards for positions in the service. These cards are seldom really used in determining the selection of new men, and are of no assistance in determining promotion. It seems clear that a complete system of records concerning the janitorial and repair force should be installed.

The force being relatively stable, few new appointments are made in any one year. When these are made, however, no service records are at hand to aid the Superintendent and Business Manager in their selection. This is perhaps not of so much moment in the selection of new men as it is in the promotion of old ones. In the latter case unrecorded impressions of the men, supported only by the personal judgment of the principals over them, control the promotion to larger and better buildings. There is some evidence of a feeling on the part of janitors that the methods of promotion ought to be more impersonal and based on actual record and service. This is not possible unless the records of service are recorded. This in turn calls for more frequent inspection of buildings and more constant check on the work of the staff.

When new men are employed, proper care is taken in introducing them to the janitorial work and the work of running the heating and ventilating plants. New men are first placed on the staff of one of the high schools as caretakers and are given an opportunity to fire under supervision before being put in sole charge of even a low pressure boiler. The precaution of the business department in this matter is to be commended. In the newer buildings having elaborate mechanical equipment, fan systems of ventilating, etc., specially trained men were brought in to instruct the regular janitors promoted to the buildings. It is of interest to note that very many of the janitors have had boiler and firing experience prior to joining the operating staff of the school system. The staff in charge of the engineering plants in

the high schools are recruited from men who have had boiler and engine experience of some sort.

Inspection of twenty-two buildings leads to the conclusion that the routine work of cleaning most of the buildings is being well done. The rooms are swept once a day, vacuum cleaners being installed in several of the buildings. From the standpoint of sanitation the use of cleaners can be justified. Figures obtained from one of the janitors who had kept a record of time required to clean buildings with and without vacuum cleaners, showed a reduction of time in favor of the cleaner of more than twenty-five per cent. The floors in a majority of the buildings have been oiled. The oiling is done twice a year generally and in case of some buildings is being carefully supervised. In others it is causing complaint from principals. Windows are washed between two and three times a year in most buildings of the system.

Janitors' Salaries

The buildings of the Grand Rapids school system are of all ages and sizes. The typical size is from eight to twelve rooms. There are but few elementary buildings larger than twelve rooms, however, and but few smaller than eight. In the assigning of janitors to different buildings, assignment to the larger buildings is regarded as promotion. This is due to the method of paying janitors. They are paid on a basis of a minimum number of rooms, \$13.50 a week for eight rooms with an additional 50 cents a week for each additional room cared for. Extra pay at the rate of 25 cents a classroom used is given for evening school and extra pay is given for social centers and branch libraries. These extra items enable the janitors in some schools to earn much more than the teachers in the buildings.

The problem of how best to pay janitors is a mooted one, and a very difficult one to solve. The scheme used in Grand Rapids does not equitably distribute salary in terms of service rendered. It takes no account of the actual floor space (in rooms) to be cleaned, of window space to be washed, of halls to be cleaned (which are not included in the schedule and which in the older buildings form a very considerable part of the entire floor space of the building), of the lawns to be cut (which are of very uneven size throughout the city and vary widely in difficulty of cutting), of sidewalks to be cleaned (which vary widely in area), of the age and condition of the building, floors, and heating plant in the building. (These vary widely and always react to the disadvantage of the janitor in the old building).

It is doubtless true that *all* of the above factors, which en-

ter into the efficiency of janitorial service, cannot be adequately taken account of in a salary schedule. It is believed, however, that all but those factors having to do with the age and condition of building and equipment and type of grounds *can* be thoroughly evaluated in a schedule. Salaries could well be paid *in terms of area* of floors cleaned (rooms and halls), windows cleaned, lawns cut and sidewalks kept in order; heating could be paid for in terms of type of plant janitor is required to handle and, either cubic feet heated or number of rooms, taken as a standard. Buildings could be classified and differentiated in the salary scale, operating in terms of type of heating and ventilating equipment and in terms of age and condition of buildings.

It is evident that the business department should make a detailed study of this problem, finding out what is done in other cities of its class and effecting a thorough change in the manner of paying janitors. Several cities now have the sort of standardization worked out which is outlined above and correspondence indicates that such a method can be administered satisfactorily. We append with this report an abstract of the methods employed in Salt Lake City, Utah, and Albany, New York, as illustrative of how other cities are attempting to standardize their building maintenance.

We give herewith the approximate salary paid per month to janitors in nine cities, worked out on an eight-room basis. This enables us to compare the salaries paid in Grand Rapids with those in eight other cities. These data have been secured by correspondence with the cities in question, and although not absolutely comparable with those in Grand Rapids, have been reduced to roughly the same basis. In some cases (as in Scranton) the payroll was sent, in which case the median salary paid was computed. Table CVIII gives the complete data on this question. It can be seen that there is no agreed-upon standard in the payment of janitors. Our tabulations show that, in terms of service, Grand Rapids pays a lower salary to janitors than all but two cities in the list. At the same time, it is recognized that in absolute amount paid, some of the janitors

TABLE CIX

Approximate Monthly Salary paid to Janitors; computed on an 8-room basis.

Lowell	\$80.00
Paterson	70.83 to 79.17
Kansas City	62.00
Scranton	60.00 (median)
Albany	60.00
Bridgeport	58.33
Grand Rapids	54.00
Nashville	40.00
Richmond	32.00

in the system may receive a much higher salary than that here indicated. In many of the other cities this would be true also, however, and it is believed that the data indicate roughly the position of the cities. These facts reinforce the view expressed above that there should be a complete revision of the methods of assigning buildings and paying janitors.

TABLE CVIII

Data on Janitors' Salaries for Elementary Schools in 9 Cities.*

CITIES	Basis	Salaries		Number of			
		Minimum	Maximum	1	2	3	4
Lowell		\$840	\$960				
Paterson	No standard unit	Janitors \$850 Assistant \$700 Engineer \$900	\$950 \$850 \$1000				
Kansas City	12 for first 4 rooms per room per month. Additional rooms \$3.50 a month each.			\$12.00	\$24.00	\$36.00	\$48.00
Scranton	No standard unit.	\$10 per month	\$125 per month				
Albany	\$66 per room (class, gymnasium, manual training—any room that is regularly maintained.)	\$60	\$125				
Bridgeport	\$50 per room per annum.	\$50 per year	\$700 per year	\$50.00	\$100.00	\$300.00	\$400.00
				(per annum with furnaces)			
Grand Rapids	\$13.50 per week for 8 rooms. \$.50 a week extra per additional room.						
Nashville	About \$5 per room per month.						
Richmond	\$5 per room per month.			Rooms less than 10 rooms \$5 for each per month (year 12 months.)			

* Data compiled from correspondence, reports, etc.

Repairs made by Janitors. At least four months of the school year a janitor has to pay relatively slight attention to the heating plant in his building. This and other causes have resulted in the janitors of the Grand Rapids school system making many minor repairs to buildings. These include repairing seats and desks, locks of doors, adjusting loose shelves, putting in win-

Rooms							Approximate Average Salary Paid Per Month on an 8-room Basis.	Remarks
5	6	7	8	8-12	10-16 or more	Assem- bly Halls		
							\$80.00	
							\$70.83 to 79.17	
\$51.50	\$55.00	\$58.50	\$62.00				62.00	\$1.75 per toilet room. \$1.00 for care of uniform.
							60.00 median	Median worked from payroll.
							60.00	
\$550.00	\$600.00	\$650.00	\$700.00	Added \$50 per room	Added \$25 per room	Equal to 2 rooms at \$25 each	58.33	High-school hall consid- ered equal to 4 rooms at \$25 each; High School rooms used for two ses- sions \$5 per room an- nually.
							54.00	
							40.00	For 8-room buildings varies from \$35 to \$40 per month.
					\$2 per month	\$6 per month	32.00	Principal and teachers' rooms \$3 each; kinder- garten \$7.50; manual training \$3; fireman \$55 per month; scrubwomen \$25 per month.

dow glass, etc. Those who are trained to do so make the minor steam-fitting repairs. In this, the business department is administering its work efficiently. It is expensive to call a shopman to make minor repairs which the janitor is able to make. The survey staff feels that this aspect of the buildings management is taking care of itself.

Janitors and Principals do not approve or oversee repair work done in the building. When repairs are needed in the building, the usual procedure is for the principal or janitor to call up the repair shop and request the work to be done. The authority and responsibility here is divided; neither principal or janitor is made definitely responsible for ordering and approving the repairs. These repair orders are not generally followed up by written requisition as planned by the Business Manager. The same lack of responsibility is true in connection with the checking of the work done by the repair force, and the time spent on the job by the workmen. It could not be established that workmen report to the repair office on arriving at or leaving jobs. In this, from a few concrete instances, it is believed there is opportunity for soldiering on the job which has been taken advantage of in some cases.

Repairs by outside firms. Repairs to be made by outside firms are ordered in the same way, through the Superintendent's office. He in turn orders the work to be done by written requisition. It is quite common for estimates to be obtained from the outside companies although many times this is not done. No check is obtained on the amount of time spent on the job by the contractor's workmen. In most cases thorough inspection of the completed job is not given. Neither the janitors nor principals hold themselves responsible for this sort of thing. When the bills come in, according to statement of principals, they are sometimes approved over the telephone and sometimes the bill itself is sent to them for approval. The Superintendent has given one instance in which an outside repair, billed at \$14.00, was reduced to \$8.00 on the matter being checked up by him. Such instances point to the need of inspection of outside repair jobs.

Use of Janitors on Summer Repair Gangs. About five to seven weeks of the summer time of the janitors is put in on various permanent repair gangs. After selecting a few of the older men to care for the lawns and smaller repairs in the buildings, the balance are divided up into gangs of from three to nine men, carpenters, painters, steam fitters and plumbers, cement crew, varnish crew, etc. This practice on the whole may be commended as an economical means of getting the annual repair

work done. The Superintendent of Buildings should make a very careful study of the annual repair problem each year and build up a complete system of records, both of service of men, cost of labor, materials, etc., on jobs. The annual repair cost is a very considerable item. It should be studied critically from year to year. There are indications that the Superintendent has been undertaking this sort of procedure, but it is believed that *from the cost standpoint* it needs to be more thoroughly worked out.

The handling of janitor's supplies has been taken over by the regular supply department of the school system. Methods of ordering by regular requisition have been put in and a system of office checking established. The janitors order their supplies for the next year in the spring on a thoroughly worked out, printed requisition. The purchase and distribution of janitors' supplies have been well standardized. Beyond this there is little check on the amount of supplies used, the condition of janitors' equipment, etc. Several buildings visited were found to contain a large collection of material. For example, in one building, eight large floor brushes were counted in the janitor's room, with pails and other janitorial equipment to match. As will be indicated in the discussion on the handling of supplies, there is a need for oversight of the handling of supplies in the buildings. It is felt that there may be considerable waste at this point in the school management.

There is little regular *inspection of janitorial service* in buildings. As noted above, it is impossible for the Superintendent of Buildings to make the semi-monthly inspection required by the Board's rules. The condition of the janitors' premises in most of the buildings was found to be good by the visiting member of the Survey Staff. The condition of some, however, was not up to standard. Methods of storing wood and coal and cleanliness of boiler rooms should be looked after in some cases. Janitors report that there is no attempt made to acquaint them with the cost of heating their building as compared with other buildings in the city. The business department figures the cost per room of heating each building each year. These figures are available for the past ten years, and supply some valuable data on heating costs. No evidence could be discovered that any use was made of these figures. Janitors and engineers are not checked up in their use of coal, and inspection of the heating equipment of buildings has not followed the computation of the costs.

There is a great *diversity in the heating costs* of buildings of the same type and size. Of the twelve-room buildings in the

city which do *not* have fan systems of ventilation, *the costs for fuel per classroom* in 1914-15 were as follows:

\$41.12
39.93
37.19
35.68
35.48
34.14
26.17

There are other more striking instances of diversity in cost of heating buildings. To heat the Oakdale school during the past three years, it has cost as follows: \$41.90, \$54.26, \$53.00, an increase of nearly \$13.00 per classroom in one year. At the same time, there was no increase in the heating costs of half the buildings in the city. The figures for the Stocking school were:

1912-13	\$36.62
1913-14	51.82
1914-15	37.93

Six other buildings in the city showed an increase or decrease in heating cost of at least \$10.00 per classroom. Other striking cases of irregularities in costs could be enumerated from the Business Manager's Report.

We believe it should be stressed that the computation of these cost data should be definitely followed up in the different buildings. Buildings of the same size and approximately the same type should not show such a diversity in heating costs. The same building should not show an increase of \$10.00 per year per classroom when others show decreases under seemingly like conditions. It may be that most of the differences could be explained by those in charge of the buildings. It has been definitely stated, though, by over twenty janitors that no such explanation is demanded of them and no attempt made to apply the cost data.

The business department has developed a system of *checking the cost of water, light and gas*. Monthly statements are sent each building, comparing the cost of the three items in the current year with those of the previous year. This is to be commended as a step in reducing waste in such materials. Visits to the buildings have convinced the Survey Staff, however, that some of the janitors do not guard against the waste of water, light and gas. In several buildings the janitors do not shut off the water after school hours. This means a large loss in water rates. Other buildings were found in which conscientious care is taken of such matters, water being turned off between classes at noon and between the close of school and the opening of the evening classes. The writer of this report went into several elementary schools, on bright days, in which large electric lights

were burning in well-lighted halls. On the whole it is felt that the great need of this branch of the business department is thorough inspection.

C. The Maintenance of the Buildings: The Repair Force.

The second largest division of the business department is the repair department. During the last ten years the business organization has developed a permanent repair force. Prior to 1910 it was a small force hired primarily to attend to miscellaneous small repairs. It was a separate department reporting through its foreman directly to the Business Manager. In 1912-13 the general school plant was administered by a Superintendent of Buildings and Grounds (to whom the repair force was made responsible) and a chief engineer over the engineering equipment. In 1913-14 a further centralization was effected, bringing all phases of the management of the school plant together under the Superintendent of Buildings and Grounds.

In the meantime the repair force and its payroll increased as shown below:

TABLE CX

Payroll of Repair Force.*

	1910-11	1911-12	1912-13
Total Payroll	\$5,713.36	\$8,576.79	\$7,472.79
Force consisted of foreman, 1 carpenter, 1 painter, 1 steam fitter for above years.	1913-14	1914-15	1915-16
Total Payroll	\$7,910.67	\$9,915.84	\$12,475.00

In 1913-14 force consisted of superintendent (one-half time), 1 carpenter, 1 painter, 1 steam fitter, 1 helper, 1 shop man, 1 general man.

In 1914-15 added 1 carpenter and 1 painter.

In 1915-16 force consists of superintendent (one-half time), 1 clerk, 1 janitor, 2 carpenters, 1 steam fitter and helper, 1 painter and 3 shop men.

* Data supplied by Assistant to Business Manager.

Thus the force has grown in six years from a minor force of a foreman and three men to a force of a foreman and nine men, in addition to receiving a fair proportion of the time of the Superintendent of Buildings and Grounds.

It should be stated that one reason for the large growth of this force is the establishment of a policy of building school furniture, equipment and apparatus. During the year and a half following July 1st, 1914, the repair force built furniture and equipment to the value of \$6,577. The Superintendent of Buildings and the School Architect made a comparison of the actual cost of building with the cost as shown by bids and list prices of outside firms. They estimate a saving in this connection of twenty per cent or \$1,644. It is impossible to check completely the accuracy of this estimate of costs under the two methods of ob-

taining furniture, but it is believed that a saving to the schools has resulted. If the policy is to be continued definitely, there should be a very accurate comparative study of the cost of constructing various types of furniture and equipment. This would put the buying and construction of school furniture on a sound cost basis.

The procedure in ordering repairs has been referred to above. It was said that orders are quite generally telephoned into the repair office where they are written down on a work order blank. This work order blank could well be redesigned with a view to more detailed listing of special items of repairs, cost statements of labor and materials, etc. A duplicate of this work order goes to the business manager who files it in his desk. It was found that the superintendent's work order file is not complete, even for the past two years. No adequate system of recording and filing repairs-jobs-facts is to be found in this office. For example, the attempt to get a detailed statement of the time that elapsed between the ordering of a repair and the completion of it was unsuccessful due to the fact that a record is not made immediately at the completion of the job itself. Furthermore, there is no written confirmation of a telephone request for repairs. This could easily result in repairs not being made for some time after the time requested. Examination of the work order file showed that it was common for ten to twenty days to elapse between the date of order of the repair and the completion. If it is the fault of the method of handling repairs, that should be improved. Emergency repairs to heating equipment, plumbing and steam fitting, etc., are evidently attended to promptly. The force includes a plumber and steam fitter, and a fair division of skilled labor is represented in its make-up.

Work orders are generally not investigated unless the job is unusual and something that cannot be adequately estimated and described over the telephone by the janitor or principal. On many small jobs this is of course not essential. On others it is very essential that a preliminary investigation be made prior to the workmen being sent to the job. It is believed that this is being handled satisfactorily.

Transportation of Workmen and Materials.

The cost of small repair jobs is contributed to by the item of transportation of men and materials. The school map indicates clearly that the location of the repair shop is not well planned from the standpoint of accessibility to the school buildings of the city. It is located in the abandoned Second Avenue School in the

first ward. Only one school in the city lies to the south of it. A glance at the school map makes clear its inaccessibility. No convenient cross-town car lines help out in the situation. Men are very largely transported to jobs by the car lines, and this necessitates a considerable expenditure of time away from the job. The Superintendent has an automobile on which a box has been placed to transport small quantities of materials. He is away from the office much of the time, however, and is seldom available to transport the men. Due to the necessity for constant movement from building to building it is clearly a wise expenditure to supply the Superintendent with an automobile.

The question of transporting general supplies and materials for the repair has been discussed for some time by the business department. A plan is under consideration of providing a light auto truck for the use of both the supply department and repair force. With the delivery of regular supplies organized as it is now, we believe this will be a wise expenditure. More will be said of this matter later in discussing the handling of supplies.

Job Costs on Repairs.

Somewhat recently the Superintendent's department has started a system of keeping job costs on repairs. To date, this has consisted of an estimate of the cost for labor and material, written on the back of the work order and filed by **buildings**. If at any time a special type of job comes up upon which cost data should be wanted, the discovery of this cost material is difficult. As noted in the discussion of the operating force, what the building department needs more than anything else is an adequate method of inspection and a complete system of records, both on the personnel and cost of the service. Following the installation of such a record system, it needs the appointment of a competent officer to keep it up.

At the present time the Superintendent of Buildings has no regular assistant. He has a clerk, paid \$6.00 a week, and a boy acting as janitor and general helper at \$6.50 a week. The former position should be merged into a larger position for at the present time there is not enough purely routine work to keep such a clerk busy. It is believed that some combination of positions can be made in the staff of the Business Manager which will result in more efficient assistantship to the building executive. It is believed that the size of the school system and the larger expenditure for operation and maintenance of buildings and grounds justifies the creation of a cost accountant somewhere in the business management. With the many excellent features of the

business administration of the Grand Rapids' schools, one aspect might well be supplemented: its cost accounting. Especially is this true of the operating and maintenance departments. The immediate officers of the system are the best ones to decide at what point in the organization to work out changes in the present scheme. That it is needed in the buildings department is evident. The suggestion is therefore made that any change effected in the whole organization take thorough account for the needs of new records and an adequate cost system in connection with the Superintendent's office.

Monthly Statements to the Board.

Recently the Superintendent of Buildings has begun the making of monthly itemized reports to the Board on repairs done and furniture built. In each case the statement shows the cost of labor and materials on specific jobs, listed by buildings. In the same report the outside repairs for the month are stated. This method of reporting is to be commended. The rules of the Board require, however, a report on the general condition of school buildings. This is not being made in the detailed form that is needed. The Business Manager has recently made a complete annual inventory of school property. This, however, is not aimed at being a thorough inspection of buildings from the structural standpoint.

The budgetary procedure is such that funds for making repairs are always on hand. The making of necessary repairs is not hampered by lack of funds for these purposes.

Outside Repairs.

The repairs made by outside companies form a comparatively small portion of the total repairs made. They consist largely of electrical, steamfitting and plumbing work that cannot be handled by the regular repair force. These repairs are ordered through the central repair shop, that is, no one is permitted to go directly to an outside company and order work done. As indicated in the discussion on janitors, there is a weakness in the lack of inspection of the repair work done and it is felt that some loss has come about. There should be some one responsible for approving repair work done by outside companies and checking the time spent on the job. Under the present organization the Superintendent of Buildings and his foreman of repairs have not the time to do this. The janitor could be made responsible for checking the time spent and some method of inspection should be worked out.

Annual Inspection and Summer Repairs.

The larger repairs to school buildings are made in the summer time by repair gangs, composed of janitors working under the direction of men from the regular repair force. It has already been said that Grand Rapids is bringing itself in line with good business practice in this connection. The city gets the services of the men in this work for from five to seven weeks. The first step in these summer repairs comes in the preparation by the principals and janitors of lists of needed repairs to their buildings. These lists aid the Superintendent of Buildings and the Foreman of Repairs in determining what repairs to estimate on. These two officers visit the building during February and March and estimate the cost of improvements and recommend those that seem most needed. At this time the cost of each job is estimated by general impression and stated in round numbers. If anything, the estimates are generally made much higher than the real cost of the job. Complete cost records on such jobs are not available. These estimates are then compiled by buildings and itemized by specific jobs, mimeographed and sent to the Common Council and Board of Estimates for consideration with the proposed budget. This method of acquainting the Common Council with the purpose of each item in the maintenance fund is excellent and serves to prevent wholesale cutting of the budget.

With the approval of the budget the business organization determines what repairs on the list can be made. The work is done in the summer by the gangs described above. In the meantime no notice is sent to buildings as to exactly what repairs will be made. Principals and janitors do not know until the opening of school sometimes whether certain repairs are to be made or not. The need for study of costs on these summer repairs was spoken of above. On the whole, the procedure of the business department in handling annual repairs is to be commended.

Summary of Conclusions on the Operation and Maintenance of School Buildings

1. The school buildings of Grand Rapids are being operated by a relatively stable janitorial force.

2. Detailed information concerning the previous training, experience, tenure and efficiency of janitors is not compiled by the building department. A complete system of records should be established and kept up to date.

3. Service records not being available, promotion is not sufficiently determined by actual service.

4. The building department safeguards the children by

training janitors in the use of heating apparatus prior to giving them responsible charge of school buildings.

5. The scheme used in Grand Rapids for paying janitors does not distribute salary equitably in terms of service rendered. The present room basis of payment should be supplemented by a schedule which will take account of age of building, type of heating plant, floor, window, hall, sidewalls and lawn area. Inquiry shows that the city pays its janitors less than the average for cities of its class.

6. A considerable amount of minor repair work and summer repair work is done by the janitorial force. This is efficient use of the Board's employees. There is not a sufficiently well-worked-out scheme of inspection and supervision of repair work both by the Board's mechanics and by outside firms.

7. The routine duties of the Superintendent of Buildings prevents systematic and thorough inspection of janitorial service. The appointment of an Assistant Superintendent of Buildings is recommended.

8. The need for the installation of accurate cost records and the consistent following up of them is most evident. There are striking instances of diversity in unit heating costs among buildings and in the same building over a series of years.

9. The buildings department has recently initiated the policy of building school furniture and equipment. Adequate cost accounting schemes should accompany this innovation. At the present time it is not possible to determine from sound and complete records the wisdom of continuing this policy.

TABLE CXI

Payment for Years 1906-1916 to Outside Architects and Engineers.*

YEAR	Robinson and Campau	Wernette, Bradfield and Mead	Smith, Hinchmen and Gryles	Totals
1906	809.64	.....	284.37	1,094.01
1907	2,023.38	.....	487.85	2,511.23
1908	2,439.42	.....	572.87	3,012.29
1909	23,380.25	.....	2,537.77	25,918.02
1910	2,099.42	.....	2,616.01	4,715.43
1911	1,750.71	.....	3,397.32	5,148.03
1912	4,058.19	336.01	123.19	4,517.39
1913	.....	2,325.24	.....	2,325.24
1914	5,959.95	2,514.17	13.50	8,487.62
1915	737.74	1,354.87	116.65	2,209.26
1916	.....	155.35	.....	155.35

* Data supplied by Business Department.

D. The Construction of the School Plant.

In the chapter on the financial aspects the establishment of a definite policy of developing the school plant was discussed. To

carry this through, the Board has gradually built up a department of school architecture. The large items of new construction undertaken in the past five years are (1) the Central High School; (2) the South High School; (3) the Lexington School; (4) the Franklin School; (5) the Sheldon School. For the designing and inspection of the first two the Board has employed outside architects. The designing, drawing up of specifications and inspection in the latter three were done under the supervision of the School Architect. The Board began its development of the School Architect's department by employing the present school architect for the designing of special school equipment. In the past six years he has gradually taken over all the architectural work for the Board. We give in Table CXI a statement of the money spent for professional services to architects and engineers since the beginning of the ten-year period of building development. The large items in 1909, 1912 and 1914 to the local architects were for services in connection with the high schools. During the past two years no money has been spent for outside architectural services. In the meantime the three new elementary schools were built. This work has added to the staff of the School Architect until now he has three draftsmen and part-time stenographic service.

The writer of this report has made an inspection of the work of this department. He has examined the facilities for and methods of getting out plans and specifications; he has studied the plans and specifications of the elementary schools built by the department; he has made a careful examination of the type of work and inspection done in the building of the new Sheldon school; he has collected cost records of school buildings both in the Grand Rapids system and outside.

As a result of this survey, he is prepared to commend heartily the work of this department. It is working on a thoroughly professional basis. The citizens of Grand Rapids can feel that their newest elementary schools compare favorably with those built in other cities. They are designed with regard for the best principles of school hygiene, sanitation and architecture. School architecture is a profession in itself. It is becoming evident in these days that the general practitioner in architecture is not so well equipped to work out the problems in this field as is the specialist trained in the field. We have no hesitation therefore in approving the type of work being done under the school architect's direction.

A pertinent question arises in this connection. Granted that the new elementary schools are well planned and built, how does their cost compare with those of similar type built in other cities?

We give in Table CXII the data on cost of fire-proof elementary schools in Grand Rapids and four other cities of its class; also in five cities in the largest population class for which comparative data happen to be available. The data on the former four cities were obtained from the business departments of each of the cities. We believe they are comparable with those from Grand Rapids.

There are three units employed in computing schoolhouse costs: (1) the cost per classroom; (2) the cost per pupil accommodated; (3) the cost per cubic foot. Let us compare the costs of Grand Rapids with those in these nine other cities for each of the three units. Table CXII gives the data in detailed and summary form.

Judged by the standards of construction in vogue in the cities of its own class, the city is paying about an average price for new elementary schools. If the comparison is extended to include the buildings built in the five larger cities the unit costs are proportionally much smaller in Grand Rapids. The city ranks second and third in the list of ten cities in unit costs. The table gives assurance at least that the establishment of a school architect in Grand Rapids has not meant an increase in comparative costs. The South High School was built recently by local architects in the city at a cost of fourteen cents per cubic foot, almost exactly the same cost as in the case of the three elementary schools.

The overhead cost for professional services (plans, specifications and inspection) on these buildings is an important question. Criticism has been made of the large overhead cost on school buildings under the present scheme of organization. To determine the status of this question the cost of professional services were secured on three elementary schools, and Franklin, Lexington and Sheldon, and the two high schools built by outside firms. Comparative data are also available from seven of the cities included in the table. The data secured seem to show that it costs slightly more to design and inspect buildings under the school architect's department than it does under outside architects. The architect's fee on the two high schools was 3.5 per cent. Professional service on the three elementary schools ran to 5.46 per cent, 6.17 per cent and 10.03 per cent. Professional services in the five larger cities ran less than five per cent in all except Boston. The excessive cost in the case of the Sheldon school has been explained by the School Architect, by showing that a change in the plans of the Board of Education necessitated two complete sets of plans. It should be noted, of course, that much time actually given to the preparation of plans for fixed equip-

TABLE CXII
Cost Data for Fireproof Elementary School Buildings.

SCHOOL	Date	No. of Class Rooms	No. of Special Rooms	No. of Pupils	Cost of Building	Plans Specifications, Inspection	Cost Per Class Room	Cost Per Pupil	Cost Per Cubic Foot Excluding Professional Services	Cost Per Class Room	Cost Per Pupil	Cost Per Cubic Foot
Scranton												
Audobon	1909	10	.....	500	\$47,402.68	\$2,170.07	\$4,740.00	\$95.00	.....	4	2	
Jefferson	1913	10	.....	500	59,493.75	2,558.75	5,949.00	119.00	.....		
Richmond												
Ginter Park	1916	14	4	659	70,535.00	.....	4,415.00	107.05	\$0.0956			
Springfield	1914	23	4	1130	86,145.71	.....	3,445.85	76.23	.1436	1	1	1
John B. Cary	1913	18	4	795	78,359.26	.....	3,913.00	90.80	.101			
Madison	1912	22	4	1060	92,562.00	.....	3,857.00	87.33	.1305			
Hartford, Conn.												
Alfred E. Burr	1915	15	3	675	210,000.00	.....	14,000.00	303.70	.203	10	10	7
Salt Lake City												
Jefferson	1908	18	6	720	115,302.00	6,450.00	6,405.00	160.00	.125			
Hawthorne	1911	11	6	440	83,269.00	4,012.00	7,550.00	189.00	.165	6	7	3
Uinia	1915	13	5	520	108,672.00	5,836.00	8,350.00	210.00	.142			
Douglas	1916	13	4	520	77,000.00	4,000.00	5,900.00	148.00	.162			
Grand Rapids												
Franklin	1915	15	4	600	77,978.25	4,837.39	5,198.55	139.96	.142			
Lexington	1914	15	4	600	74,929.44	4,180.24	4,995.29	124.88	.153	3	3	2
Sheldon	1916	15	3	600	72,918.00	7,314.30	4,861.20	121.53	.1446			

Cost Data for 46 Fireproof Elementary School Buildings in Five Cities. (Ayres' School Buildings and Equipment. Cleveland Survey.)

CITY	No. of Buildings	Average Cost Per Class Room	Average Cost Per Cubic Foot	Average Cost Per Pupil	Special Rooms for 20 Class Rooms	Average Cost Per Room Special and Class	Per Cent for Plans, Specifications and Inspection		
Detroit	10	\$4,972	\$.156	\$125.	7.4	\$3,629	4.76	2	4
Newark	9	6,641	.196	156.	4.7	5,232	4.76	5	6
Cleveland	11	7,765	.171	175.	13.5	4,678	3.42	7	5
St. Louis	7	9,054	.193	209.	7.0	6,584	3.96	9	8
Boston	9	7,878	.256	210.	6.2	6,012	9.10	8	9

Grand Rapids:
 Franklin Building 6.2%
 Lexington Building 5.5%
 Sheldon Building (?)

ment, making up the detailed estimates for furnishing of new buildings, etc., has been prorated to the cost of these new buildings. On the whole it is questionable if the actual cost has been any greater under the present scheme than under that which uses outside architects. Aside from the mere financial criterion, there is no doubt that the Board gets a sound return from its expenditure in the way of specialized professional services.

II The General Supply Department of the Schools.

General Supplies. The supply department of the Grand Rapids school system handles an annual business of over twenty-five thousand dollars. To a certain degree the smoothness with which instruction proceeds depends on the efficiency of this department. The successful manipulation of a business of this size demands a thoroughly co-ordinated organization operating on sound business principles. Important to the success of the administration of this department is the way in which its machinery is planned to fit the instructional needs of the system.

The business organization in Grand Rapids includes a very well-worked-out supply department. It is directly managed by the Supply Clerk, whose staff consists of four persons, an office assistant, a receiving and billing clerk, a shipping or routing clerk and a delivery man who give a certain amount of time to the repair force. The Supply Clerk is selected by the Business Manager and reports to him for approval on practically all procedure except routine matters. There may be a question whether the supply clerk should not have a little more independence in his work. The Supply Clerk's organization appears to be working smoothly in most places.

The purchase of supplies in a big city school system needs to be standardized and safeguarded in the extreme. No supplies should be bought except through the central supply department. In this respect the Grand Rapids schools are in the lead. They are working out a safe and efficient method of buying supplies. No supplies can be bought by teachers or principals. All must secure their materials through the central office. Furthermore no supplies are sent from the central storeroom except on written approval of the Supply Clerk or his authorized assistant. It is believed that this is a sound method of handling the matter.

Supplies are bought annually on specifications which are being carefully worked out. Orders for all such supplies are subject to bid. Bids are tabulated and stock selected that best fits the needs of the department. This procedure throughout is to be commended as businesslike. The department is now working on the standardizing of specifications for various types of sup-

plies. Those include all stationery and various papers; pens and erasers; pencils; ink; art and manual training materials; blackboard material; cooking, hardware, paint supplies and dry goods. The Survey Staff feel that the work that is being done in this direction is in line with sound business practice. There have been some complaints from a few principals of the poor quality of pens, paper and ink. The supply department has initiated special studies of the standardizing of certain of these materials, and it seems to be improving the way in which its work is adapted to the efficiency of instruction.

Records. The supply department is developing a system of records that will operate shortly as a permanent inventory. The records are so organized as to give charges against schools, and the purchasing records charge by item all supplies issued from the department. The former records enable the Clerk to check the quantity of supplies sent to any building against the amount ordered for the year, the amount previously used, and the amount used by other buildings. In some cases this record has been used to cut down needless ordering by principals. From the office end of the line, economy and efficient administration of supplies seem to be evident. Annual per capita costs for supplies are figured by buildings by the Business Manager's statistical clerk and reported in the Annual Report of the Board of Education. These computations show that there is excellent uniformity in the per pupil cost of supplies in the different schools of the city. With the exception of the special schools and the very smallest schools, the cost is practically constant in all buildings. With the high-school costs there is close agreement between Central and Junior High School, but a much larger cost at the Union School.

The Supply Clerk maintains two offices, one at the main business office in the City Hall and one at the central supply room in the North Division school, three blocks away. At the main office the clerk has an office assistant who takes care of all office routine, posts the purchasing records, attends to the correspondence, filing, etc. Her work the past three months has consisted largely in bringing the records up to date. That will be accomplished very soon. With the records brought up to date, much of the time of this assistant can be put on other matters. If the Supply Clerk maintained his office at the storeroom, the time of this clerk could well be put in doing some of the clerical work that now has to be done by the routing clerk or driver. It is difficult to see the need for the Supply Clerk's maintaining two

offices, especially when he is away from his staff a major part of the time.

The Storage of Supplies. All regular supplies of the Board are stored at the central storeroom in the basement of the North Division School. This is well located in a central position in the city and accessible from all points. The department long ago has outgrown its quarters, however. The Board should take steps to give the supply department more room. Materials are piled in such fashion as to mean a considerable waste of time and energy in handling. At the central storeroom the supply clerk has three assistants. During the ten weeks following July first, there is a rush season of inventorying, stock-receiving, and order-filling. During this time the department is especially hampered in its lack of facilities. Aside from the lack of room, the department seems to be caring for the supplies of the school system in an efficient manner. The Board has been considering plans for a central administration building which would include the supply department. It is clear that expansion of present quarters will be an imperative necessity soon.

The present organization under the Supply Clerk is such that he is forced to take a hand in the manipulation of the stock **only** during the summer months. In thus being relieved of the routine clerical and manual duties of his office he is given time to improve ways and means for giving the schools better service. This is a step in the right direction.

The Handling of Supplies in the Buildings. In this connection, it seems evident that there ought to be more frequent inspection of the handling of supplies in the buildings. At the present time there is none. Principals store their supplies in unlocked closets and in many cases both teachers and pupils have access to the supplies at all times. Several instances were found in which the supplies for the building were stored in an unlocked closet opening off the main hall. This is a method of procedure that ought to be corrected. The Supply Clerk could well spend some of his time putting in and keeping up a better system of handling supplies in the buildings.

The Distribution of Supplies. The department has worked out a system of regular monthly distribution of supplies throughout the city. A regular schedule for each section of the system has been planned, and supplies delivered in accordance. Teachers and principals know exactly when to order and exactly when supplies will be delivered to them. For delivery, the department has an automobile on which a small box has been built. This is inadequate for the present size of deliveries. The proposition to get a half-ton truck for the use of both supply and repair de-

partments would seem to be a step in the right direction. The only question involved is one of administering to the needs of both departments. During the summer months the truck is badly needed by the repair gangs and in the winter by the supply department. It would seem that it might be possible to use it efficiently in both departments.

The supply department has worked out an efficient scheme of ordering and receipting for supplies. Orders are made in triplicate and no goods are delivered without written receipt. The department has been able to safeguard the handling of supplies in this way.

Complete inspection of this department leads to the conclusion that its work is being done efficiently and with considerable regard for both business and instructional conditions. It is believed the supply clerk in the future should spend more time on the latter phases of his work. The department needs more room and it needs to develop the inspection of the handling of supplies in the building.

The Purchase and Inspection of Fuel

The Board of Education spends nearly twenty-five thousand dollars a year for fuel. To heat its buildings the past year it used about seven thousand tons of coal. It is possible to so standardize the specifications, method of purchasing, inspecting and accepting of coal as to result in a high degree of economy.

It is pertinent to note that there is no real inspection on more than half of the coal delivered. With the close of September the coal inspector goes back to his position as janitor of the East Leonard School and the only inspection given is the formal receipting for delivery done by the janitor. In a few cases it was found that janitors take samples of the coal delivered to their bins and turn these in to the Business Manager who has them prepared for the test made by city engineers. These samples, however, are not properly taken according to the descriptions of the janitors themselves. During the seven months October to April 1915-16, nearly 3,900 tons of coal were delivered, over 2,000 tons in February and March alone. On this coal there was practically no real inspection.

In 1914-15 the coal received was of a very low grade. It was so low in fact that the coal inspector rejected sixteen carloads at one time. The coal annually delivered to the buildings was so poor as to cause great inconvenience and a very large amount of waste in the heating of buildings. This instance is referred to as an indication of what may well happen when the quality of coal

delivered is not inspected. At the same time, shortage in weight is not being checked up. To an outside observer the situation seems to demand yearly inspection of coal. A table of deliveries by months for 1915-16 taken from the records of the business office shows that the average delivery from October to April was 500 tons. This means fairly constant hauling of coal throughout the winter and a need for nearly daily inspection.

III. School Accounting in Grand Rapids.

1. **The Organization of the Staff.** The accounting and clerical work of the public schools is done under the immediate supervision of the Business Manager. To assist him he has a regular bookkeeper and an assistant to the bookkeeper, an assistant to the secretary and a statistical clerk. The assistant to the secretary takes care of the general correspondence, drawing up of contracts, drawing up of bond abstracts, and the handling of miscellaneous duties. Much the same could be said of the bookkeeper. A long list of the functions of these two positions reveal something of a lack of clear definition of duties. For example, the bookkeeper spends considerable time "waiting" on the public, teachers and janitors, (this is the legitimate work of an assistant office clerk), writing teachers' contracts and collecting institute fees, purchasing streetcar tickets, stamps, etc., reading proof and checking proceedings, monthly statements, etc., making copy of ledger "funds" for monthly statement of funds to be printed in the ledger, etc., etc. Would it not be possible to define the duties of the four positions in this office subordinate to the Business Manager with a view to more unified definition and classification of duties? It would seem as though the bookkeeper could well give his time to the accounting and bookkeeping phases of the work, leaving many of his miscellaneous and clerical duties to an assistant or office clerk.

2. **The General Method of Accounting.** The scheme of accounting employed in the business office may be described as a receipts and disbursements system. The journal and ledger bookkeeping is relatively simple and easy to manipulate. It results in specific statements of the standing of various funds at any time, and from the standpoint of commercial accounting it reports adequately all financial transactions. The moneys of the Board of Education are at the present time classified in 33 principal funds (which have grown out of the original 26 funds.) The system was planned originally so that the funds 1 to 9 were primarily educational funds and the funds 10 and above were business funds. The scheme as it stands today is not well adapted to the needs of the educational department. The funds can

hardly be said to be organized so as to result in specific statements of the cost of educational service.

Let us take an example. Fund 3 is a fund for teachers' salaries. Together with 3a it will total between \$500,000 and \$600,000 a year. The present scheme throws together the salaries of all teachers, principals and supervisors. The accounting methods thus do not result in definite costs expressed in pertinent educational units. The scheme is not built to result in such statements. The educational officers are interested in a financial accounting system which will enable them to evaluate the costs of educational service, administration, instruction, supervision, operation of the plant, maintenance of the plant and outlay for permanent improvements in terms of kinds of schools and of buildings. As at present organized the business department cannot co-operate with them in this without much "digging out" of detailed data.

At the same time that fund 3 is not analyzed, fund 4 (supplies) is subdivided into 34 subordinate funds, which are reported in monthly statements of the Board co-ordinate with fund 3. In the same way funds 5 and 6 are divided into 17 smaller funds. (It is true of course, that the necessity for reporting to the officers in charge of those specialized funds will necessitate keeping them itemized in the ledger.) First, then, we would criticize the general organization of the funds and the method of analyzing them.

Second, the general accounting is not planned in accordance with the best school accounting standards available, namely those adopted by the National Association of School Accounting Officers and the United States Bureau of Education. These standards have now been adopted in many cities in the United States. The only reason given for not adopting the standard form of organizing financial facts in Grand Rapids is that the latter has not been absolutely standardized. It should be said, however, that relatively little change has been made in the form since its adoption five years ago. Each year the Business Manager reports to the United States Commissioner of Education the financial facts concerning the Grand Rapids school system, on this same standard form. To do so means the expenditure of considerable time in reclassifying from the records the information desired.

It appears to the Survey Staff that in the reorganization of funds there should be adopted the grouping agreed upon by the combined associations, in terms of educational service and **kinds** of schools. This would result in a specific statement of the cost of administration, supervision, instruction, outlay, each in terms of day elementary schools, day high schools, junior college,

evening schools, special schools, etc. Grand Rapids is opening up many special types of education. Its accounting methods should take cognizance of them. The proposed changes do not mean a wholesale revision of accounting methods. They mean simply a closer analysis of certain funds, 3 for example, and the combining of others and regrouping of all so as to give a more adequate educational classification of them.

In this connection we note the present methods of differentiating elementary educational costs between the fourth and fifth grades, resulting in grammar school costs and primary school costs. It cannot be found that this has any real educational significance. Salary schedules take no account of such a distinction in the lower grades and in the housing and organization of pupils the administrative officers pay no attention to such a scheme of grouping. Why should the financial reporting be done in terms of it?

On the other hand the system is showing a very real differentiation between the lower six grades, the intermediate seventh, eighth and ninth and the upper three grades. The city seems to be committing itself to a six-six organization of the twelve grades of the public schools. If the business department is to co-operate fully with the educational department, might not its accounting methods be differentiated on some such basis as this? If any reorganization of "funds" is to come, this important factor might well be taken into consideration. It was indicated above that the city now has six different ways of administering intermediate education. This condition will naturally hamper any complete readjustment of accounting on the six-six plan for some time to come. In the meantime, thorough ways and means for studying the cost situation should be worked out by the business department.

Methods of Recording School Facts in Grand Rapids: The Bureau of Census and Statistics.

The business and educational departments of the school system have been run for ten years as **two co-ordinate departments**. It is a fair question whether the facilities of the business department have been directed specifically at contributing to the operation of the other. In the matter of the recording of school facts, there is quite evident a lack of unification of methods. The superintendent of schools immediately directs a general attendance department which takes care of truancy work in the buildings and visiting work in the homes. For its efficient operation necessary systems of records of attendance have been developed. At the same time, recently there has been created a bureau of census

and statistics. This has been placed under the direction of the secretary of the Board (the Business Manager in this case.) This scheme of organization is explained by the educational department on the grounds that the state law requires the secretary of the Board to take the census. The law states that the census shall be taken by "the secretary of the board of education or other reputable and capable person or persons employed by the board." There is therefore no legal requirement that the office of the Business Manager take the census and administer the statistical department. The director of the bureau of the census and statistics has recently worked out a very excellent plan for a **continuing census** which is to be commended. The work of this census will contribute information that should be placed immediately at the service of the attendance department.

It is a striking fact that an enumeration of the list of activities directed by the bureau of census and statistics shows that with one exception these activities are primarily "**educational**" and not business or financial in nature, e. g., enrollment and attendance records of the superintendent; the class records of teachers; school extension records; the activities of the vocation bureau, etc., etc.

The work that is being done under the director of the bureau of census and statistics is closely similar to some of the work being done under the head of the attendance department. In fact, we have found evidence of duplication of records that should be eliminated. The activities of the two departments are such that they should be co-ordinated into one under one superior executive officer. Since the outcomes of the operation of this general census, attendance, and statistical department are primarily "educational" and not "business", the department should be placed under the immediate supervision of the superintendent of schools or his assistant. The city may look forward in a few years to the necessity of having a special assistant superintendent over all such activities—census, attendance, statistics and school research.

There is still other pertinent evidence to show that it is difficult to administer a school system efficiently under a dual organization such as exists in Grand Rapids. Problems of educational research, such as studies of non-promotion, elimination and retardation pertain most directly to the work of instruction. For this reason, the head of the instructional department ought to have at his command all available research data. Studies of non-promotion in the grades recently made by the director of the bureau of census and statistics have been reported to the business manager who can make no educational or business use of them.

At the same time, the results of the research have not been reported to the superintendent of schools and made available for the improvement of school practice.

Treated from various points of view, it seems quite clear that the present methods of recording school facts should be completely reorganized. It is suggested that one department of census, attendance, statistics and research be organized, reporting immediately to the superintendent of schools or to the assistant superintendent of schools.

CHAPTER XVI

ADMINISTRATIVE ORGANIZATION

The Board of Education of Grand Rapids faces, as does every other board of education in large American cities, grave problems of organization which grow out of the complexity of the school system. A city of the size of Grand Rapids has a number of different kinds of districts. It is, of course, theoretically desirable that each of these districts should have equal school facilities. This would mean that all of the buildings ought to be equally well equipped and equally well built. It would mean that the corps of teachers in each building ought to be of the same quality. It would mean that the course of study ought to be equally advanced and equally well organized.

The superficial view of this problem is that all of the different districts ought to be treated, in all the respects enumerated, exactly alike. For example, in the matter of the course of study, equal facilities for the different districts will be interpreted by some to mean exactly the same course of study. A more careful consideration of the problem, however, will convince anyone that the needs of the different districts are in many cases radically different. In some districts, most of the children are going to high school, while in others the great majority are likely to enter the industries directly after leaving the elementary school. The Board of Education and the school officers have, accordingly, the very delicate problem of providing school facilities that shall be equally well arranged but not identical in kind.

Furthermore, it is almost impossible in a city system of the size of Grand Rapids to keep the building equipments uniform. School buildings erected twenty years ago are lacking in many of the improvements which appear in the newer school buildings. It is quite impossible to discard a building because it is falling somewhat behind in its equipment. The best efforts must be made to keep the building in suitable working condition. This

means in a system with forty school buildings a necessary difference in material equipment.

Finally, the distribution of the teachers is not a matter over which the Board has instant and absolute control. The services of a teacher who has faithfully worked in the system for a number of years are in many respects much more significant to the schools than any contribution which can be made by a younger teacher. Conversely, the younger teachers are coming in with recent training and with an equipment in subject-matter and in knowledge of the science of education which many of the teachers of an earlier generation never had an opportunity to acquire. There is no such thing as a teaching staff in a large city which is uniform throughout in character.

When considerations of this type are frankly faced, it will be recognized that the school problem in Grand Rapids is enormously complex. This complexity will be all the more vividly realized when one looks into the details of the administrative machinery which are necessary in a great school system. For example, let one consider the work of a school superintendent. In a city of twenty thousand inhabitants, it is easily possible for a school superintendent to do a large part of the supervising of the schools through personal inspection. He can in the course of a year spend a great deal of time in each of the classrooms in the schools. He can become intimately acquainted with the administration of each building by constant personal presence in each building. Not only so but he can oversee most of the purchasing of supplies for the system and he can keep in mind the supplies furnished to each building.

By the time the population has doubled, the difficulties in the way of personal supervision by a single superintendent become much greater. If he is more interested in methods of teaching than in business matters, it is probable that he will relinquish first of all his relation to the routine of securing supplies. If, on the other hand, he has a taste for business, it is probable that he will absorb himself in matters of material equipment and will leave the classroom work to take care of itself or at least to be supervised by the different principals. In either case, the disintegration of the school system will threaten unless some way can be discovered of mastering the complexities of the growing situation.

Anyone who has had the patience to read up to this point the details presented in this report will realize that the general statements just made are supported by the actual diversities within the school system of Grand Rapids. These diversities have been kept in check by good organization, but they are

present in impressive degree in spite of this good organization.

Grand Rapids can not look for a solution of these problems in any legislation or in any form of organization which has been provided by the state. The fact is that state school legislation has been formulated in very large measure to fit small towns and rural districts. There is a clear legal recognition of this fact in the habit exhibited by legislatures of granting independent school charters to large cities.

Grand Rapids must work out a form of organization which will fit its own needs. There is under the state law great latitude for such organization. Let us turn to several examples which will illustrate at once the kind of problem which faces the Board of Education of Grand Rapids and the type of solution which is to be advocated.

The school Census Bureau furnishes an excellent illustration of the difficulty which the Grand Rapids Board of Education comes upon in defining and unifying the functions of its officers. Under the laws of the state of Michigan the school board is obliged to take a school census. The primary reason for taking this census is that the state supplies certain funds to the school system of Grand Rapids on the basis of the number of children in the city. The law also indicates that this work shall be done by the board through its secretary. In Grand Rapids the secretary of the board is the business manager of the board. The Bureau of Census was therefore organized as a part of the business office. The returns which are secured by the Bureau of Census would be of great value to the attendance officers and would also be of much greater value than now if connected directly with the scholarship records which are kept by the schools on the cumulative card records made out for each child. Under the present somewhat inadequate definition of the relations between various officers the connection between the Census Bureau and the instructional department is not complete or satisfactory. The Bureau undertakes investigations which are related primarily to instruction and the attendance department does not use the census results.

Another illustration can be drawn from the experience of the schools in administering supplies. There is a central supply station which is evidently well managed. Supplies are distributed to the school buildings where they come into the hands of the school principals. Some of these principals are careful and efficient in business methods and handle the supplies as they should be handled. Other principals do not handle these matters as they should. The question now arises as to how the principals are to be trained in handling supplies and what system

shall be adopted to insure proper inventory and suitable economy from the point of view of the system as a whole. Business methods have grown complex in this case and the proper business supervision of each building in a great system comes to be a difficult task. The ordinary supervision of principals emphasizes almost exclusively their instructional functions. Their conduct of business affairs is not under as strict scrutiny. Yet the systematic supervision of the business organization of each building is important because of the difference between the different buildings in the personnel of the staff, because of differences in the accommodations which exist in the buildings themselves for housing supplies and because of the different kinds of children who make use of these supplies in the different districts. The setting up of a central supply office does not solve this problem.

Another illustration can be borrowed from the chapters on tests. Again and again it has been shown in these chapters that the different buildings of the school system show different degrees of efficiency in the different subjects of instruction. Some of these differences in achievement are inevitable because of the differences between the children who are in attendance in the various schools. The development of an administrative machine that shall distinguish between the differences that are inevitable and those that are due to variations in methods of teaching is a problem which has become acute in recent years not only in Grand Rapids but in every large school system in the United States.

A final example may be drawn from the experience of the Board of Education itself. Much of the work of this Board is done by two committees, one of which has charge of instructional matters, the other of which has charge of finances. In carrying on the routine of school management these two committees found themselves drifting apart with the danger before them of becoming virtually two Boards. Fortunately the danger was seen in time to remedy it. The expedient was adopted of having the chairman of one committee sit as a regular member of the other committee. If, as indicated by this experience, there is danger of decentralization within the Board, how much greater must be that danger when the large body of teachers, principals, and other school officers is involved.

The fact that the business activities of the Board and its activities in considering plans of instruction are not fully coordinated appears in the annual report. This report is made up of two distinct and little related subdivisions.

What can be done to meet these difficulties and hold to-

gether all of the activities of the school system? The answer involves two seemingly contradictory principles. First, the system must be administered in an impersonal way. This means that plans for future action must be based on evidence drawn from a study of the needs of the schools. This means further that there must be a candid measurement of results. It is more important that the schools should face their practices in regard to non-promotion than that there should be condemnation or commendation by any individual. In short, the schools must be unified by the facts. The kind of unity which will grow out of a study of results is the only kind that will be permanent.

The second principle which seems at first hearing to conflict with the foregoing statement is that the school system should have a single responsible head in charge of all of the activities of the schools. This does not mean that the single head should be clothed with arbitrary powers. Just because the unity of the school system can be secured only through a study of the facts about the system, this central executive must organize his office in such a way as to collect and interpret the facts about the system. He must make his plans and recommendations with a clear view to the first principle that the system can be unified only by a study of results. The single central executive is needed in order that the impersonal facts may be focused on every school problem. It is just as essential in a school system that there should be a single central unifying executive as it is essential in a great business corporation or in government.

The argument is not for the creation of one-man control. The argument is not for the creation of dictatorial powers. It has been shown all through this report that the factors entering into the school system are manifold. They must all be recognized and evaluated. They must be co-ordinated and balanced. The Board of Education must unify and promote a great and complex body of interests. How can it do this? Only through a consideration of plans and policies which have been brought together from all sources by a single central officer.

Let us make this concrete. At present the business office is independent of the superintendent's office. The two offices should be united. At present the superintendent presents plans and asks the Board to sanction them without, in some cases, giving a detailed financial plan as a basis of action. The superintendent should be required by the Board to submit for every project which he suggests a full and workable financial plan. The Board should not allow even its own members to inaugurate plans without an investigation of all of the facts involved. In the location of a building or in making a change in the course of

study, the Board should first seek the facts. It should direct its executive, the superintendent, to bring together the facts which should guide action. Or take another example, if the Board should decide to enlarge the Junior College, it ought to require of its executive a full plan showing the character of the institution projected, the financial outlay involved and the evidences that the organization is needed and the evidence from the experiences of other cities that the project can be made to succeed. If extra help is required in the superintendent's office to prepare such a report, the Board could well afford to supply it. The reason for some of the blind experimenting that has gone on in school systems up to this time is that there has been no provision for administration planning and reporting on a large scale.

The plan which has been sketched in the last paragraph is not, as some may object, a plan for the increase of the superintendent's power to the point where he becomes the autocrat of the system. It is a plan for the control of everybody, Board, superintendent, and teachers alike, by facts and clearly formulated policies. It is unfortunately true that school systems have been conducted all over this country in a vague experimental way. Even teachers have been in doubt as to the kinds of results they have been achieving and the kind of plans which they should make. It is little wonder that business men connected with boards of education have tended to magnify purely financial considerations. The amount of money spent could be ascertained with a good deal of precision. The educational results secured have been unknown. The future of the teaching activities has seemed to Board members somewhat vague. The future on the financial side has, of necessity, had to be clear. The result is that Boards have naturally come to emphasize financial considerations and financial organizations. The time has come when the educational side of school work ought to be cleared up. There can be no doubt that schools are organized for the purpose of teaching children. Schools have to spend money but they were not organized as financial institutions. It seems absurd to think of the spending division of the system as independent of the teaching division.

Put the matter in terms of the findings of this report. Grand Rapids has an excellent school system. It is comparatively compact in its organization, it has introduced some most intelligent modifications in school organization before these have become common in school systems the country over, it has a well-trained corps of teachers, it is achieving good results. These statements are in danger of attracting less attention than will the

one statement that the school system of Grand Rapids is expensive. The criticisms made in this report where attention is drawn to the necessity of improving instruction in certain particulars are in danger of exaggeration because communities have not been trained in the careful study of educational results and do not know how to deal with a report that is critical in any detail.

The Board of Education of Grand Rapids has an opportunity to contribute to the inauguration of a new era in school administration. Let the Board continue the policy which it has adopted in organizing a survey. Let it demand of its officers a clear statement at frequent intervals of the results being attained in the schools. Let the Board insist that the statements of results be compared in detail with the statement of costs. Let the Board insist that the future be planned in detail and with the greatest explicitness. Let the Board make it its chief duty to pass on plans and keep before the people the results of its studies. Let every officer be subject to the demand that results be proved and plans be worked out in detail. There will in such a situation be no danger of unfair domination by anyone through his mere personal influence and there will be no danger that finances will suffer.

It has been suggested in an earlier paragraph of this report that the school board increase its supervisory staff. There ought to be in a city of the size of Grand Rapids some officer who should rank as an assistant superintendent and who would have as one of his important functions the study of administrative and supervisory matters. Such an officer would in the long run be a source of direct economy to the Board. His work, supplementing that of the present officers, would promote efficiency in all educational lines. The appointment of such an officer would balance to some extent the increase which has been made in recent years in the cost of financial administration. The fact is that in most American cities, as in Grand Rapids, the administrative machinery has expanded more slowly than the other phases of school organization.

Coupled with this increase in the agencies for educational work should go a very definite movement for an improvement in training the principals of the elementary schools. The observations of the Survey Staff have convinced all who have worked in the schools that there is at present too great devotion on the part of principals to petty routine. In many cases there is a distinct lack of knowledge of administrative matters and a lack of initiative in the study of school methods of a modern type. Controlling a school building is a large public responsibility.

This responsibility can not be met unless the officers in charge of buildings know how to test results. Some principals resist any comparative studies because they know that their own organization is vague. The city has a right to demand of principals, as of its major officers, a clear, frequent statement of results and of plans for the future. Every building should be frequently checked up in financial as well as educational matters. The principals should have large authority and should be held strictly accountable. It is recommended that principals be required to report to the superintendent at frequent intervals, definite evidences of progress in their schools. It is recommended that they be required to show that they are keeping abreast of current educational movements and that they are taking definite steps to improve the teaching corps in their buildings.

SUMMARY OF THE REPORT OF THE SURVEY OF THE PUBLIC SCHOOLS OF GRAND RAPIDS

Methods of the Survey

During the winter and spring of 1916 twelve educational specialists made a survey of the schools of Grand Rapids. They made observations in the classrooms of both the elementary and the high schools. They also went over the records of the school system and compiled tables showing the organization of the teaching staff, the number of children in the different grades who are promoted and not promoted, the number of students in the various high-school classes who secure high grades, or fail in their work, and other matters of the same type. They examined the financial records of the Board for the purpose of finding out how expenditures are distributed over the different activities of the school system. All these matters have been reported on in detail in the various sections of the survey report.

After collecting facts of the type indicated in the last paragraph, comparisons were worked out to show how Grand Rapids stands in relation to other school systems in matters of instruction and expenditure. Furthermore, the various school buildings within the Grand Rapids system itself were compared with each other so that it is possible on the basis of the facts which have been brought together to pass judgment on the relative efficiency of the various schools and of the system as a whole.

Survey Staff

The following men constituted the staff which carried on the survey. The particular duties which they performed are also indicated in connection with their names. Professor Charles S. Berry, University of Michigan, prepared the report on special classes. Professor John F. Bobbitt, University of Chicago, prepared the report on the elementary school curriculum and on the school buildings. Dr. George S. Counts, Delaware Univer-

sity, prepared the report on arithmetic. Mr. John B. Cragun, University of Chicago, prepared the report on music. Professor Calvin O. Davis, University of Michigan, prepared the report on high schools. Superintendent John H. Francis, Los Angeles Public Schools, reported briefly as indicated in the discussion of junior high schools on the work of that part of the system. Professor Frank N. Freeman, University of Chicago, prepared the report on writing. Dr. William S. Gray, University of Chicago, prepared the report on reading. Dr. Benjamin F. Pittenger, University of Texas, prepared a large part of the statistical material used in the chapters on teachers and promotions. Dr. Harold O. Rugg, University of Chicago, prepared the report on school finance. Mr. Matthew H. Willing, University of Chicago, prepared the report on composition. Professor Charles H. Judd, University of Chicago, organized the survey staff and edited the results, contributing the portions of the report not otherwise indicated.

Introduction—General Characteristics of the City

The survey report has a brief introduction which reviews the census tables and other information describing the city of Grand Rapids as a manufacturing and economic center. Reference is here made to the fact that there are a number of parochial schools in the city which are not included in the survey of the public school system. Reference is also made to the fact that there are other educational institutions in the city which contribute to the life of the people.

It would be very advantageous if the municipality as a whole would survey all of its social resources as the Board of Education has surveyed the schools. There are many forms of educational activity which apply chiefly to the adults in the community, such as libraries, churches and places of amusement. These ought to be understood and the need for their enlargement is quite as great as the need for the enlargement of school facilities. As is shown in the report on the schools, Grand Rapids is a city altogether competent to provide its people with the best intellectual and social opportunities. These should be developed not only for the children in the schools but also for all classes of people at all stages of development.

Chapter I—Teachers

The first chapter of the report deals with the teaching staff in the schools. Their training and tenure of office are exhibited from the records of the Board of Education. The high-school

teachers are in the main college graduates, especially those who teach academic subjects, thus conforming to the standards of the University of Michigan and of the North Central Association. There are a number of older teachers in the high-school faculties who are not college graduates. A sharp distinction appears between the training and experience of teachers of academic subjects and teachers of special subjects such as manual training, drawing, etc. These teachers of special subjects are very much less experienced and have spent much less time in their training than the teachers of the traditional subjects. Many of them are not college graduates. As a result the newer subjects are put at a distinct disadvantage in school organization. It is only fair to say that exactly the same situation exists throughout the United States. If, however, these newer subjects are to be organized as well as the traditional subjects, they ought to be taken care of by teachers of the greatest possible training and maturity. The school authorities ought to continue the policy so far as possible of aiming at the same level of training for teachers of both academic and non-academic subjects.

Among the elementary school teachers it is the teachers in the middle grades who have the least preparation and experience. This again is in conformity with the practice of schools throughout the United States. There are some dangers in this distribution of elementary teachers. It is always necessary for a school system to assimilate its younger and less experienced teachers by putting them somewhere, but the distribution ought probably to be made somewhat more uniformly over all the grades. The training of the elementary school teachers is very good. Most of them are graduates of normal schools and some of them are college graduates.

The kindergarten teachers are very largely trained in Grand Rapids and have only that experience which they have acquired in the city. The report recommends that the public schools assume in a much larger degree responsibility for the training of kindergartners.

In point of tenure, attention is called to the fact that the teachers of Grand Rapids remain relatively long in their positions, which shows that the organization of the system in this city is stable in its relations with the teachers.

The training and experience of the principals of the elementary schools are made subjects of special comment. Many of these principals have been in the service of the Grand Rapids system for a long period of time. The record of their training, in many cases, does not show any evidence of their having specialized on the problems of school administration. Indeed,

many of them are unable to report any special studies during the recent years of their connection with the school system. This is a matter of grave importance to the school system. School supervision is not the same as class instruction and anyone who undertakes to supervise a school building ought to make a special study of the problems of organization. The principal ought to keep up with current educational literature, and this can be done only when the principal is vigorous in study and attendance on the many educational institutions which are now offering special training of this kind. The practice in American schools has been to advance to the principalship the senior teacher in the school building. This practice ought to be discontinued. Special attention ought to be given to the kind of study which will qualify one to make tests of the work done in the school and supervise the teachers so as to set up and maintain the highest standards. For example, as will be shown in the next chapter of the report, the problem of promotions is a special administrative problem depending on principles that need a much more complete standardization than has been worked out in the Grand Rapids schools. Control of promotions is one of the major duties of the principal and where there is any irregularity in the standard of promotion the school system ought to look into the efficiency of the principal.

Chapter II—Non-Promotions in Elementary Schools

The second chapter of the report deals with non-promotions and failures in the elementary schools. Non-promotions are of crucial importance in the school system because they show the extent to which the work of the schools is not successfully completed by pupils. Whenever a child fails the school is confronted by a serious problem. It used to be the habit of school authorities to assume that the child was responsible for his own failure. It was assumed that the course of study and the methods of instruction were fixed and that the children must conform to all of the standards thus set up in the schools. In recent years, on the other hand, it has been recognized that the school shares with the pupil the responsibility for a failure. It is recognized that the course of study ought to be modified so far as possible to meet the needs of individual children. Where the course of study cannot be modified special classes can be developed which will take care of the children who are not able to complete with success the ordinary course. Grand Rapids has done a great deal in its efforts to provide special classes for children who fail in the regular work. A separate report on the classes for defectives and retards is included in the survey and emphasis

will there be laid on the fact that it is a great advantage to an educational system to differentiate the pupils in such a way as to leave the regular classes free to work with children who are adapted to the course of study and who can in great proportion succeed with the work of that course.

The record of non-promotions shows that there is a high percentage of non-promotions in the first grade. This is the common experience of all school systems. The children are trying to adjust themselves in the first grade to the work of the school. Many of them find this difficult with the result that they do not succeed. By the second grade non-promotions in the Grand Rapids schools are reduced to about ten per cent of the children. This is a better record than is exhibited in many school systems. The percentage is, however, high, and the teachers of Grand Rapids ought to be encouraged to make a careful study of this matter of non-promotions and find out its causes. Some of the causes can be discovered by making a detailed study of failures in particular subjects. Such a study was made by the survey and shows that the failures in reading are high in the early years of the school but fall off notably and steadily in succeeding grades. The failures in arithmetic, on the other hand, increase and are at a very high level throughout the school year. From the third to the seventh grades the failures in arithmetic average more than 19 per cent. This is a very high level of failures in a particular subject and indicates that the work that is expected of children in the grades is heavier than it ought to be.

The report also contains tables and diagrams showing the failures in other subjects. Thus it is shown that the failures in the fifth and sixth grades in geography are at a very high level.

The situation with regard to non-promotions is relieved in part by the fact that the Grand Rapids system has a plan of trial promotion. A great many children who fail in particular subjects are not held back for the whole grade but are allowed to go forward for one year on trial. This plan is to be commended because it saves a great many pupils from non-promotion who would otherwise be held back for a full year.

The statistics for non-promotion have been put together in the report so as to show that the practices of different schools are very different. In the first place, when one compares successive grades it appears within the same school that the practices of different teachers differ widely so that in two successive grades the level of non-promotions is altogether different. In some buildings the non-promotions are very high throughout all of the grades while in others they are relatively low. These facts

show that there is great need of standardization of the practices of the different schools.

Observations and Tests in Elementary Schools

Chapters III to VIII describe in detail investigations which were made of the results of elementary school teaching. These results were observed by members of the survey staff. In addition standard tests were used to discover the ability of children in each of the subjects. The most important subject in the elementary school curriculum is reading. A good deal of time and attention was devoted both by the survey staff and by the principals and teachers to this subject with the result which may be described as follows.

Reading

This study was carried on by means of systematic tests in oral reading and in silent reading, and by means of classroom observations. The tests were given to 4,066 pupils in 37 schools by the principals and their assistants. The material used in the tests consisted in short selections which had been used in similar studies in other cities.

The distinction between these two types of reading is one of great importance. In earlier days, oral reading received special emphasis in every class. At the present time it is emphasized chiefly in the lower grades. Experience has taught that this type of reading is very effective during that period when the pupil is mastering the fundamentals of reading. Even in the intermediate and upper grades, a pupil is called upon frequently to read orally. On the other hand, a pupil soon learns to use reading as a means of securing ideas for himself and he substitutes silent reading for oral reading. During the greater part of his school life the progress of a pupil depends upon his ability to master the thought of the printed page during the periods of silent study. Furthermore, under most ordinary situations of life, one reads silently for the purpose of gathering ideas and not for the purpose of oral exhibition. With this recognition in mind of the very great importance of silent reading, it was quite clear that the quality of instruction in reading in Grand Rapids should be determined upon the basis of achievement both in oral reading and in silent reading.

In oral reading, it was found that pupils in Grand Rapids stand very high. As compared with Cleveland and a number of other cities which had been tested up to that time, Grand Rapids holds first place. The classroom observations revealed

the fact that these commendable results are due in a large measure to excellent methods which many teachers in Grand Rapids pursue. The tests showed, however, that schools vary widely in their achievement in oral reading. It was, therefore, recommended in the survey report that a careful study be made of problems in teaching oral reading to the end that the excellent methods now used by the more skillful teachers may be explained and demonstrated.

The silent reading tests measured the rate at which pupils read silently and the degree to which pupils understand what they read. The results of the tests showed that Grand Rapids secures a relatively high level of attainment in rate of silent reading. This is a phase of reading, however, concerning which teachers should not feel satisfied with their results even though they are superior to other schools. Most schools are low in rate because there has been no recognition of the importance of rate.

A careful study of the ability of the pupils of Grand Rapids to understand what is read showed that they are below the average for thirteen cities which have been measured by similar methods. This is a phase of reading to which teachers of Grand Rapids should give increasing attention. The successful results are due to the keen interest which teachers are taking in teaching reading, to the large number of readers supplied to the teachers, and to the excellent methods developed by many of the teachers. The points where improvements can be made are brought out in the tests and the methods of making the improvements are suggested by a careful observation of the classes which make high records.

Arithmetic

The next series of tests dealt with arithmetic. For some time past the pupils in the elementary schools of Grand Rapids have been using a series of practice exercises in arithmetic which were prepared by Mr. S. A. Courtis. The test which was given them was an elaborate test going somewhat beyond the exercises on which they had been practicing but covering in detail all of the work done in the elementary grades. The test in question is a spiral test. The fundamental operations of addition, subtraction, multiplication, and division appear in the early sections of this test in simple form. Through the remaining sections of the test the fundamental operations appear in more complex forms. The same test is given to all of the children in the schools and the results are tabulated so as to show how far children in the different grades and in the different buildings

are able to solve correctly examples in each of the sections of the test.

Full tables are presented showing the success of the different grades in this spiral test. Furthermore, a comparison is made between Grand Rapids and Cleveland, Ohio, where the same test was used. In general, it may be said that the pupils in Grand Rapids are somewhat lower in the earlier grades than are the pupils in Cleveland but in the upper grades the Grand Rapids pupils succeed better. This would indicate that stress is not laid on the arithmetical processes in the early grades of the Grand Rapids schools as much as in Cleveland. The final success of the work seems to justify the method of postponing emphasis on these arithmetical processes.

One table which gives the general results for all of the schools in the Grand Rapids system is especially interesting because it shows a very high degree of consistency in the work of the different elementary schools.

Some further analysis was made of the standing of children of different ages with a view to stimulating types of study which will lead to the adaptation of the course to children of different degrees of ability and different ages. As pointed out in an earlier section of the report, the arithmetic course needs to be modified in view of the fact that the failures in this subject are excessive as contrasted with other subjects in the course of study.

Penmanship

The next subject of instruction in which tests were tried was penmanship. A few years ago the Board of Education of Grand Rapids found that the penmanship in the schools was unsatisfactory. They accordingly introduced a new system and required each of the teachers to acquire a higher degree of skill and to adopt this system. The results of the test make it clear that the system of handwriting now in use in Grand Rapids produces good results. Especially does it produce a high level of speed throughout all of the grades. The quality of handwriting in the lowest grades is not as good as the quality of handwriting in many other school systems, but under the system which is employed in Grand Rapids it is not expected that emphasis will be laid on form in the early grades. The satisfactory result which is obtained in the upper grades removes any criticism that might be directed against the work of the schools.

Mr. Freeman in making his report on handwriting discusses at some length the desirability of introducing in the early grades the amount of arm movement which is now practiced. It is his judgment that the system ought to be somewhat modified in

these early grades so as to free the little children from the necessity of the type of movement which is there required. The study reveals further the fact that the practices of different schools in the system are very different in the matter of handwriting. This is one of the subjects which it is very difficult to supervise unless one has definite standards and constantly checks up the results by a series of tests. The recommendation is therefore urgently made that in all of the school buildings supervision of penmanship be worked out by means of systematic tests frequently applied to the grades.

Composition

A series of tests were made in composition. The children were asked to write on a subject carefully assigned and the results were compared by means of a series of children's compositions that have been graded by Mr. Willing in equal steps so as to constitute a suitable scale for evaluating the work of the children of Grand Rapids. Here again differences in the different schools were conspicuous. In the main the work was found to be good. It was superior to the results of a similar test carried on in Denver, Colorado. Since the Denver school system is a very good system it is fair to infer from this comparison that the work in the Grand Rapids school system would be superior if compared with the average school system of the country.

Observation Supplements Tests

Testing composition is a very fair way of getting at the general intelligence of the children because they are called upon to use a difficult medium of expression and to use it with a degree of correctness and fluency which exhibits their power to express themselves in all matters in later life. It is at the same time much easier to test composition accurately than to test the special subjects such as history and geography in which the school gives them training. Indeed the tests which have been described up to this point in the report deal only with those phases of school work which can be reduced to a definite quantitative basis. There are other phases of school work which can be judged only indirectly by these formal tests. It should be remembered, however, that each one of the members of the survey staff who performed tests had an opportunity through his visits in the classrooms to form a judgment of the character of the work in the schools.

The classes are industrious and well organized. The teachers are for the most part efficient and successful in their work. The school system shows by the results of the tests and from

all of the observations a high type of organization and a high level of achievement.

Music

Turning from the regular subjects of school work to one of the special subjects, an investigation was made of the course in music. Grand Rapids has emphasized a number of the newer subjects which have been introduced in the course of study because of the general training which the pupils acquire from these subjects. Music is such an additional subject. The work that is commonly offered in American schools in music is not as well standardized as the courses which are offered in the traditional subjects. It is difficult, therefore, to give any definite comparison which will show the success of the work in music in Grand Rapids.

Mr. Cragun, who observed the work in music, passes a very favorable judgment on all that he saw. He finds that the work in Grand Rapids is carefully systematized so that the children who have difficulty with music are taken care of in the early grades and the chief source of failure in school music is thus eliminated. He finds also that the educational aspects of musical instruction have been carefully worked out. The children know how to pay attention to musical intervals and how to recognize the rhythms which are part of their musical training.

This favorable judgment of music is in a measure confirmed by certain tests which Mr. Cragun tried on the children. He has some material from St. Louis and the Elementary School of the University of Chicago, and this material all tends to show that the work of Grand Rapids is of a high grade and successful in its results. Mr. Cragun's conclusion with regard to the music instruction in Grand Rapids is especially significant in view of the fact that Grand Rapids invests each year a good deal of money in special training. It is distinctly the view of the Grand Rapids administration that this type of training is socially important and of great individual significance. One of the reasons why the school system of Grand Rapids is expansive is that courses of this kind are introduced.

Other New Subjects.

We may assume that some of the other newer types of work that are less conventional than reading and arithmetic are also carried on in a successful way. There are no standards which make it possible to determine the degree of excellence of the work in drawing, but a number of the members of the survey

staff in the course of their observations made favorable reports on the work in drawing and also the courses in physical training.

Course of Instruction in the Elementary Schools.*

The examination and discussion of the work of the elementary schools in connection with the survey proved a pleasant task because of the fact that so much good work is going on within the city. The professional people are in a high degree alive to the nature of current educational problems. They have been and are industriously and conscientiously grappling with those problems; and like the progressive school people throughout the country, as they adapt and adjust the work year after year, they are solving the various problems. The best ideas already to be found in the work of the city in connection with the teaching of each of the subjects, where these subjects are taught at their best, cover about everything that we can recommend in the report of the survey. The primary duty of the survey therefore turned out to be that of selecting what is currently considered the best types of work as these are already developed by thoughtful and progressive teachers and supervisors in the city, and of recommending that these best types of work found here and there through the city, be made general in all of the schools.

In reading the instructional recommendations of the survey, school people and community should keep in mind one important fact and one equally important probability which amounts to practical certainty: (1) The character of the educational work found in the city is now far in advance of what it was twenty years ago: (2) The character of the work now found in the city probably falls equally far short in its quality of what it will be in another twenty years. Great pains have been made in the past. Equally great gains are yet to be made, innumerable beginnings of which are to be observed everywhere throughout the work of the city. As one points out improvements which need to be introduced, therefore, it is not in any spirit of fault-finding criticism. One is merely co-operating in the development of a constructive program. One is simply attempting to reenforce the arguments and efforts of those now working within the system who are attempting to secure these very same improvements.

The reading work of the schools, to take one of the more important subjects first, is developing along good lines. In the buildings where it is best done, whether in primary or grammar grades, the children cover a large amount of reading material during the school year. Reading needs to be increasingly done for

*This section of the summary was prepared by Professor Bobbitt.

the thought, the mental experience, and the general widening of one's intellectual and social vision. Covering so much ground, the children are trained to rapid reading. The conditions demand also training in thoughtful silent reading. The schools are supplied with a considerable quantity of supplementary books in sets. The city is, however, singularly fortunate in its library situation. It is doubtful if any other city in the country has done so much to place at the disposal of every school such easy and complete access to a great city library. The degree to which both schools and community are taking advantage of the various types of library facilities is one of the signs of incalculable promise.

To the subject of history, Grand Rapids is giving only about half as much time as the average of fifty representative American cities. Practically all of this is placed in the last two grades of the elementary school. Since about thirty per cent of the growing generation in Grand Rapids drops out of school before completing the work of the last two grammar grades, it follows that this large per cent of the population of the city does not have that fundamental training in American citizenship which comes from a study of American history. This deficiency in historical training is serious. It is in part made up through the supplementary and library reading. While this is excellent, it seems that it should be taken care of more consciously. In a democracy, civic problems requiring a good historical background for judgment are very numerous, and are growing still more numerous.

Civic instruction is mostly a mere addendum to history. It is, however, of immeasurable social value. The work now done within the city is of only a rudimentary type. No subject is more in need of conscious direction and development.

Where the geography work in the city is at its best, the schools are well supplied with geographical reading materials, maps, models, pictures, etc.; the teachers have learned the value of the geographic experience that is to be had in connection with these concrete modes of presentation; and they have learned the superior value of problem-geography as compared with the old textbook fact-learning type of teaching. The good type of work referred to, found in certain of the buildings, needs to be made general throughout the system. This cannot be done, however, until the various buildings are supplied with a larger quantity and usually a better quality of geographical reading materials. While maps, pictures, charts, etc., are indispensable, good reading materials must really constitute the basis of teaching the subject.

In arithmetic the schools labor under the serious handicap of

having a textbook which they do not generally use. Major attention is given to skill, accuracy and speed in computation. Too much time, however, of both teachers and children is consumed in finding and copying problems out of books other than the textbook. On the one hand, the city is in need of a text that is adapted to the type of work that is being done; and on the other hand, supplementary printed helps are also needed. These are in part already being supplied by the board in the shape of the Courtis practice material.

When one inquires as to the grammar and composition, one early discovers the influential presence of "The News Junior." By furnishing a wide reading public, this little paper vitalizes the written expression of hundreds and even thousands of the children. The plan is highly commendable and the schools in general seem to be taking a full advantage of their opportunity.

Without going into further detail, it can be said of the other subjects that in all of them, somewhere within the school system, one finds superior work going on which points the lines of development to be followed in making this type of work general throughout the schools of the city.

Special Classes and Schools

In addition to these reports on the regular routine of elementary instruction, Professor Berry of the University of Michigan prepared a special report on the various classes which are organized to take care of children who are defective or backward in their school work. This report opens with the comment that Grand Rapids has more children of this type in special classes than most other cities. This does not mean that Grand Rapids has more children who are defective but that the machinery for separating them from the rest of the pupils is more completely worked out. In fact, Grand Rapids has been more energetic than most cities in selecting these difficult cases and giving them the treatment which takes the form of separate classes and separate schools.

There are a number of types of special classes and schools for backward children of various types. Mr. Berry commends the system as successful in many of its aspects. He believes that it would be better to segregate these children earlier than they are now segregated. In making this recommendation it should be clearly recognized that a grave social problem is involved in separating any children from the regular classes. Parents usually object to the removal of their children from the regular grades, and supervisors are anxious lest they should be guilty of mistakes in picking out children who will later prove to be normal. The

community ought to be educated to the point of recognizing the difficulty which the school here encounters and the necessity of providing whatever facilities are necessary for the proper care of these children.

Society has a problem in defective children which is not merely an educational problem but a general social problem. If these children are not taken care of, they become dependent and very expensive in their later years. Not only so, but society suffers from their maladjustment to the social order in many other ways.

At present the equipment for these special classes, while relatively good, is in some cases not as complete as it should be. Grand Rapids is therefore to be commended for what has been done on the material side along the lines of providing for these children, but is urged to go much further in elaborating the facilities for treating these children.

Mr. Berry has performed a number of tests to check up the work done by the regular officers who have these children in charge and finds that the supervision of these schools is in satisfactory condition. The devotion of teachers of special classes is to be commended and the general organization of this work is excellent.

High Schools.

A full report on the high schools is rendered by Mr. C. O. Davis of the University of Michigan. The report on the high schools can be divided into three sections. First, there is a section dealing with the junior high schools; second, one dealing with the senior high schools or the regular four-year schools; and finally, one dealing with the junior college organized at the Central High School.

Junior High Schools.

The junior high school represents an effort to create a closer connection between the elementary school and the high school. In most cities the break between the eighth grade and the first year of the high school is so great that children have difficulty when they get into the high school in adjusting themselves to the methods of work and to the requirements of their instructors. Grand Rapids was one of the first cities in the United States to recognize the desirability of reorganizing the seventh and eighth grades so as to avoid so far as possible this break between the elementary school and the high school. The junior high-school movement has come in recent years to be one of the most sig-

nificant movements in American education. Grand Rapids preceded other cities in organizing this kind of a school.

There are three different types of junior high schools in Grand Rapids. The institution which bears the name "Junior High School" is a separate institution in which the upper grades are at work by themselves. The South High School has a six-year course of study which includes both the junior high school and the work of the senior high school. The Union High School relates the work of the junior high school somewhat more closely to that of a fully organized elementary school.

In all of these institutions the course of study differs somewhat from the course of study ordinarily administered in the seventh and eighth grades. Opportunities are given for specialization on the part of those children who are going to go on in the languages. Other children who wish to specialize in the manual arts are given an opportunity to take courses of that type. The junior high school thus gives an opportunity to differentiate somewhat the courses of the different pupils.

It is the contention of the report that this differentiation and modification of the courses ought to go forward even further than they have gone in Grand Rapids. Where the junior high school reaches its fullest possible organization the children in the seventh and eighth grades are allowed an opportunity to do some of the science work and some of the work in mathematics which has traditionally been regarded as high-school work. Without attempting to go into the details which are taken up in the report it may be said that the report urges a continuation and extension of the junior high-school organization.

Senior High Schools.

The senior high schools are undertaking a number of new lines of activity. Thus, the sixty-minute period has been substituted for the forty-minute period. The various subjects in which instruction is given are being reorganized with respect to their material so as to make this material more appropriate to the students in the courses. In general it may be said that Mr. Davis finds the work of the senior high schools well organized and conducted in a thoroughly progressive spirit.

There is a difference between the opportunities offered in the various high schools. The Central High School remains the best equipped and most completely organized high school of the city. Sooner or later the facilities in the other schools ought to be raised to the level of the facilities offered in the Central High School.

In dealing with the organization of the work in the various

classes one finds that the different teachers evidently have standards that differ widely from each other. This appears in the fact that the grades given to the students are very different and the number of failures in the different courses vary from each other by wide margins. There is less uniformity and systematization of the high school than there is of the elementary courses.

These comments furnish an opportunity to suggest the desirability of a more definite effort on the part of the high schools to standardize their work. This does not mean that the work needs to be made absolutely uniform, but in all of those common characteristics of the high school there ought to be a clear consciousness of the necessity of offering an equal opportunity to all of the children and of administering these equal opportunities on the same general principles.

Junior College

The junior college constitutes one of the grave problems of school organization in Grand Rapids. It was undertaken in response to a natural demand on the part of the young people of the city who expect to go to college for an opportunity to carry on the work of the early years of their college course as economically as they can and as near their own homes as possible. Mr. Davis presents in very clear terms the arguments in favor of junior college work in the larger cities of the country. Wherever the community is large enough so that there are young people who can be more economically and advantageously trained at home it is in the interests of public economy that provision be made for them. These young people would go to the University of Michigan if they did not have an opportunity in Grand Rapids itself to attend a junior college, and the total expense to the community of their higher education would be much greater than it will be if they are given junior college privileges in connection with the high-school course. On the other hand, it appears that the junior college is not at the present time in a flourishing condition. It is very little attended and it appears to be diminishing rather than increasing in registration. It is Mr. Davis' view that some encouragement of the organization would make possible a larger registration. At all events, the problem is clearly stated in Mr. Davis' report.

The solution of the problem involves in some measure the attitude of the University of Michigan. It is the attitude of the University that the courses which receive college credit shall contain only students who are candidates for college credit, that is, there shall be no mixture of college students and high-school students. It is also the attitude of the University that every

credit which is given must be approved in detail by the departments at the University of Michigan.

It is pointed out in a preliminary statement made by Mr. Judd that these limitations from the University of Michigan destroy entirely the spirit of continuity between the high school and the junior college which characterizes at every other point the school system of Grand Rapids. It is quite impossible to organize a junior college economically unless the small elective classes which are open to advanced students in the high school can be utilized for college purposes. The solution which is here suggested is one which would perhaps encounter opposition from the state university, but the report urges that an experimental attitude be assumed toward the situation and that a genuine effort be made to bring about an adjustment which shall increase the registration and shall make economical the organization of the junior college. One conclusion certainly can be reached. If the junior college cannot be improved, it ought to be abandoned.

Professor Bobbitt visited the various elementary schools of the city. His report on his observations is as follows:

Buildings and Equipment

In any consideration of the school buildings, one must divide them into two classes: (1) those that represent the building policies of former boards of education; (2) the newer buildings which represent the present building policy of the board.

The newer buildings, such as the Sheldon and the Franklin, are thoroughly modern in practically every aspect of construction and equipment. The school plant supplies the material facilities for a wide range of educational and community activities. classrooms, assembly room, gymnasium, manual training room, domestic science room, branch public library, cloak rooms, nurse's room, shower baths, moving picture and stereopticon facilities, social center room, teachers' rest room, teachers' lunchroom, a room for ungraded pupils, etc. Buildings are fireproof, well lighted, well ventilated, the air properly heated, changed, and humidified; and general sanitary and instructional arrangements are of the most approved type.

Some of the older buildings represent types of construction long since superceded. They usually offer opportunity for but a limited range of community and educational activities. The writer was informed that when the present Board took charge of affairs, the building situation was in a deplorable condition. The city was years behind in its building program. At a time when the city was growing rapidly, the Board has had the double

problem of making good past deficiency, at the same time supplying modern provision for a rapidly expanding school population.

Much has been done by way of modernizing all the older buildings that must continue to serve for years yet. New ventilation arrangements have been made. Modern toilet facilities have been installed. New windows have been cut in rooms that were too dark. Unused basement rooms have been made into playrooms, shops, and kitchens. Older heating systems have given way to improved modern ones.

While the Board has done as much for the older buildings as its funds would permit, much yet needs to be done as rapidly as the community is willing to supply the funds. Briefly stated, the task is simply to supply for all the districts of the city, so far as is reasonably possible, the same variety of social and educational opportunity that is now supplied with districts having the newer buildings. Sometimes this will mean certain further alterations in construction or equipment; sometimes the building of an addition which ought in many cases to be but the first unit in the construction of a thoroughly modern fireproof building which is to take the place of the older building years hence; and in a few cases the entire building ought to be replaced with a new structure as early as practicable.

Financial Report

The financial situation in the Grand Rapids school system is taken up in great detail by Dr. Rugg, who discusses the financial organization of the system. A summary of his findings is as follows:

The Cost of Public Education in Grand Rapids.

Among the cities of 100,000 to 150,000 population, Grand Rapids is a city of average wealth. It ranks ninth in 19 cities of that size in real wealth per inhabitant. With this average wealth, however, it is supporting schools more liberally than all but two other cities, Springfield, Massachusetts, and Des Moines, Iowa. In general, it shows itself to be a leader in the extent to which it taxes itself for schools. Furthermore, although it spends less for general city departments than most cities of its class, it gives a larger per cent of its municipal revenue to schools than any other city of the same size. Forty-five per cent of its city revenue goes to schools, whereas it is common for such cities to devote twenty-five per cent for such purposes.

Although the city has been liberal in its endowment of education, it can hardly be commended for the method by which it

has raised certain portions of its school money. Due to a long period of neglect of school buildings a decade ago, the Board of Education was forced to establish a thoroughgoing building program. Large sums of money were needed, and over two million dollars were spent for such purposes in the ensuing ten years. The larger part of this money was raised by bond issues, although at the same time the Board of Education had a large unused taxing capacity. The law permits the Board to raise in any one year six mills on the dollar of assessable property for current running expenses, and an extra five mills for school buildings, grounds, additions, etc. This is an unusual privilege, for most such cities have to finance all their school work on 6 or 7 mills. Notwithstanding this legal power, the Board has never taxed the city for school buildings to a greater extent than about one-third of the possible 5 mills. Instead, it has been forced to sell two million dollars' worth of school bonds, using a method that school administrative specialists agree is not wise school business policy.

The Board has been desirous for years of building its school houses out of taxation, but the Common Council and Board of Estimate have not permitted this. Thus we have a city which is extremely liberal in its support of schools in the position of handicapping its Board of Education in the carrying on of school business. "The most adequate treatment for the future could come through legislation placing the taxing power in the hands of the Board of Education. As indicated above, to do so would bring Grand Rapids in line with the most progressive practice in the administration of school finance. The reorganization of the Board under the new charter ten years ago eliminated political influences from the immediate administration of the Board's educational and business services. The Board should look forward to a reorganization of taxing methods which will put the raising of school funds on such a basis that real use can be made of a scientifically planned budget."

The future revenue of the Board of Education seems fairly assured. The city has greater legal capacity for financing schools than many other cities of its class; its assessed valuation is increasing very rapidly, having doubled in 10 years; its taxes for schools increased in 10 years from 2.29 mills in 1906 to 5.30 in 1914. If property values increase during the next 15 years as they have in the past fifteen years the Board will face no immediate need for a revision of the taxing limits for general purposes. As pointed out above, the city should be prepared to give the Board enough to build its schools out of tax money instead of bond issues. Along with a rapidly increasing expendi-

ture for schools has gone a more rapidly increasing revenue with the result that the Board has been forced to borrow money but once in fifteen years to meet current expenses. This borrowing in 1912 was due to a change in the legal date for collection of state tax money, thus hampering the Board in Grand Rapids to the extent of \$225,000.

How does the Board spend the city's money? Investigation shows that the Board is, in the main, distributing the city's money to different kinds of school work fairly equitably. That is, it ranks first in 19 cities in its actual endowment of educational and business overhead charges (administration) and in the amount it spends for the instruction of each pupil in the schools. In its attention to running the plant and keeping it in good repair it spends more than two-thirds of the cities of its class. The Board has shown a tendency to give relatively more attention to non-instructional or business matters than to purely instructional matters. This is due primarily to the fact that Grand Rapids has a two-headed system of school administration, a business manager over all business affairs, independent of the Superintendent of Schools who is in charge of only educational matters. It is the conclusion of the survey staff that this condition should be changed and that certain other departmental changes be brought about as recommended in the detailed report.

The Board is paying better salaries to teachers than all but one city (Springfield, Massachusetts) of Grand Rapids' class. However, it has not developed the supervisory work of the schools as much as other cities. It is endowing both elementary and secondary schools better than all the other cities, excepting Springfield, but gives a much larger proportion of its money to its high schools than to its elementary schools. It should pay proportionately more attention to developing elementary education in the city. This large expenditure per pupil for secondary schools is caused by the fact that Grand Rapids has had a very rapidly developing high-school population. This has meant four things: a rapidly increasing secondary staff, a parallel decrease in the size of classes, a decided increase in the secondary payroll, a parallel increase in the salary schedule. Salary schedules for both elementary and secondary schools have been increased liberally by the Board. At the same time the high-school and grammar classes are small enough to provide ample opportunity for good instruction. The primary classes are much larger and it is believed that more attention should be given them.

Within the past five years the Board of Education has developed the junior high schools and the various special schools very rapidly. Inquiry leads to the conclusion that the expendi-

tures for these purposes are probably justified. It reveals, however, that the business department of the schools is not working intensively enough in the accounting end of such activities. The Board never obtained a statement of the added cost of such activities. The survey shows, for example, that it costs nearly twice as much to teach a pupil in the seventh and eighth grade when he is in the Junior High School as when he is in the regular grammar school. This is due largely to larger salaries paid to teachers and smaller classes. This increased expenditure can very easily be justified by the increased benefit to the pupils. The whole problem of cost accounting in the public schools should be taken up more thoroughly.

General Administrative Organization

The last chapter of the report deals with the administrative organization. Under the Board of Education there are two divisions of school administration. One has to do with the instructional side of the school's activities; the other has to do with the business organization. The unity of these two organizations is secured through their common dependence on the Board of Education.

Too much cannot be said by way of praise of the attitude of the Board of Education toward problems of administration. This body is free from political influence and is carrying on the schools in the most harmonious way. The efficiency of the school organization, while it is to be attributed in large measure to the school officers who deal directly with the problems of the classroom, is also to be attributed to the spirit and temper of the general administration which does not interfere with these technical officers but rather supplies them with the equipment which they need for their work.

A school board, whatever its spirit of administration, faces in a modern American city a most complex problem. This problem includes buildings, teachers, and central administrative officers. To hold all of these agencies and equipments together in such a way as to offer a like opportunity to all of the children of the city calls for the highest type of technical knowledge and technical supervision. Such technical supervision and unification of the school system can be provided for only when administrative machinery is set up complete enough to include all of the interests that are at stake and impersonal enough to treat all of these interests with impartial justice. In the early days of American school organization, when school systems were small, the effort was made to direct these school systems through personal observation, and the strong influence of a single individual

was enough to guarantee a complete organization of the school. Today, when the conditions are so much more complicated, it becomes necessary to provide the school system with the means of scientific supervision. There must be a constant system of reports which will bring to the central office information regarding the activities of each school. For example, the attempt has been made to show in this report that much closer supervision of non-promotions is necessary than can be given under the present method of dealing with that problem. This closer supervision cannot be of a purely personal type. There must be a standardization of practice and there must be a careful analysis of all departures from the standard practice.

Scientific supervision means a more elaborate type of supervision than is provided at the present time. This in turn means a more definite recognition of the dangers of the lack of unity. The grave problem which confronts a school board, therefore, is the problem of providing more agencies of supervision while at the same time it provides greater concentration of responsibility in the central office.

The report offers several examples of present practices which show in the judgment of the survey staff the desirability of a union between financial administration and instructional administration. These examples are intended to make clear the recommendation of the survey staff that the Board of Education take steps to correlate the business activities of the Board's officers more closely with the activities of the officers in charge of instruction.

Conclusion

The report in general shows that there is a very satisfactory condition of progress in the Grand Rapids school system. Instruction is of a high order and results are relatively superior. The detailed recommendations which have been outlined in this summary and are presented in full in the report would make for an improvement of a school system already well organized and carrying on its work in a very adequate fashion.

Industrial Education Survey

There is one general comment which is introduced at a number of points in the report and may be made the subject of special remark. Grand Rapids as an industrial city has a problem of vocational education which has been solved only in part. There are now provided educational opportunities in the night classes for vocational training of adults. The relation of vo-

cational education to regular school work requires in Grand Rapids, as it does in most American cities, more attention than has been accorded to that problem in the past. The kind of reading matter which children have in the schools will undoubtedly have to be modified in view of the use which they are going to make of reading in practical life. The science which they study would furnish a very interesting and useful introduction to a study of industries. Mr. Bobbitt's comments on the course of study and Mr. Davis' comments on the need of enlarging the manual opportunities of the junior high school, all point in the direction of a general problem which the Grand Rapids system ought to face, namely the problem of offering an opportunity for more industrial education to the young people of the city. Modifications in the course of study which are introduced in order to solve this problem ought not to be introduced rashly. The only intelligent procedure for any community is to find out what are its industrial needs and what are the relations of industry to school work. The complete and satisfactory adjustment of relations in this matter calls for a careful scientific study of the situation. This could be carried out in Grand Rapids by a survey of the industries such as has been made in Richmond, Virginia, or in Minneapolis, Minnesota. It is recommended by the present survey that additional investigations of this type be made so as to prepare the school officers and the community for an enlargement of the school work to include industrial education.

INDEX

Administrative organization	476-483, 504
Administrative policies of Board	419
Arithmetic	106-128, 490
Failures in	40
Grand Rapids and Cleveland compared	110
Instruction in	186
Test	106
Assembly rooms	346
Auxiliary classes	311
Equipment	314
History and organization	311
Recommendations	325
Selection of pupils	313
Supervision	321
Teachers	321
Training and instruction	315
Berry, C. S.	13, 306, 484
Blackboards	357
Bobbitt, J. F.	13, 155, 340, 484
Branch Library rooms	346
Buildings and equipment	340-360, 500
Bureau of Census and Statistics of the Grand Rapids Schools	50, 473
Business management of the public schools	441-475
Civics	178
Classrooms	348
Cleaning of buildings	357
Cloak-rooms	347
Commercial branches	241
Composition	85-105, 492
Instruction in	190
Scale	86
Test	85
Conditional promotions	48-50
Cost, of high-school education	429
Of intermediate education	432
Of public education	361-440, 501
Counts, G. S.	13, 106, 484
Course of study, Grand Rapids, Mich.	248, 254
Los Angeles, Cal.	246
Solvay, N. Y.	242
Trenton, N. J.	247
Courtis, S. A.	186
Cragun, J. B.	13, 145, 485
Creswell, Mrs. Cordelia	306
Davis, C. O.	13, 212, 485

Defectives, elimination of	37
Departmentalization of work	284
Diagrams	
Dyer, F. B.	331
Elementary schools, failures in	36-60
Non-promotions in	36-60
Elementary science	240
Elimination, of defectives	37
Of pupils	262
English	231
Enrollment, high school according to subject	260
Junior College	267
Expenditures, Board of Education:	
Current expenses	382
Educational vs. business	387
Educational services	392
Permanent improvements	382
Expenditures for school purposes:	
Grand Rapids	375
Experience, of grade teachers	31
Of high-school teachers	28
Of kindergarten teachers	27
Of principals	33
Of teachers of special subjects	28
Failures	290
In Arithmetic	40
In elementary schools	36-60
In reading	40
Foreign languages	235
Foreign population	15
Fortnightly Club	330
Francis, J. H.	13, 208, 485
Freeman, F. N.	13, 129, 485
Geography	180
Grade teachers, experience of	31
Preparation of	25
Grammar	188
Grand Rapids Public Library	164
Gray, W. S.	13, 62, 485
Greeson, W. A.	306
Gymnasiums	346
Handwriting, tests in	129
Harrington, Dr.	332
Heating	349
High schools	497
Enrollment of	220
Location of	213
Organization of	214
Recitation periods of	221
High-school teachers, experience of	28
History	168, 237
Instruction of, in grammar grades	174
Household occupations	205
Industrial education	262, 505
Industries of Grand Rapids	17
Instruction in the elementary schools	155-207, 494
Judd, C. H.	13, 485

Junior College	499
Grades	269
Junior high school organization	228, 497
Kindergarten teachers, experience of.....	27
Preparation of	25
Lighting	351
Manual training	200
Mathematics	233
Methods of the survey	484
Music	147-154, 493
Educational	148
Instruction in	199
Recreational	147
Nature study	194
New buildings	340
Non-promotions in elementary schools.....	36-60, 487
Investigation of	50
Percentages in various grades	39
Reasons for	37
Older buildings and equipment	344
Open-air classes	329
Open-air rooms	360
Oral reading tests	63
Organization of teachers	20
Parochial schools	16
Penmanship	129-146, 491
Physical education	196
Pittenger, B. F.	13, 485
Playgrounds	359
Population, foreign	15
Preparation, of grade teachers	25
Of kindergarten teachers	25
Principals, experience of	33
Training of	33
Promotions	290
Reading	62-84, 489
Comparison of in Grand Rapids and Cleveland.....	68
Failures in	40
Instruction in, in intermediate and grammar grades.....	159
Instruction in, in primary grades.....	157
Interpretation of	69
Methods	162
Recommendations	275, 302, 329, 334, 338, 448
Retarded pupils	307
Revenue, sources and amounts of	370
Rugg, H. O.	13, 361, 441, 485
Secondary schools	212-305
Secondary school system as a whole.....	213
School accounting	471
School plant, business management of	445
Construction of	462
Maintenance of	457
Supplies	467
Seating	355
Senior high school organization	254, 498

Silent reading, quality of	77
Rate of	74
Tests	74
Special classes	306-339, 496
Spelling	191
Summary report	484-506
Supervised study	223
Survey staff	13, 484
Tables	
Taxation for school revenue	365
Teachers	20-35, 276, 485
Academic, preparation of	21
Experience of	276
Qualifications of	251
Salaries of	276
Special, preparation of	21
Time preparing work	286
Training of	276
Vacations of	282
Technical training of teachers	21
Tenure of teachers	21
Tests, introduction to	61
Training of principals	33
Of teachers	276
Truant School	334
Ungraded classes	325
Vacation schools	226
Ventilation	349
Willing, M. H.	13, 85, 485
Woodruff, Dr.	332

